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(71)出願人 000001845

サンデン株式会社
群馬県伊勢崎市寿町20番地

(72)発明者 國府 哲也

群馬県伊勢崎市寿町20番地 サンデン株式
会社内

(72)発明者 曾根 雄二

群馬県伊勢崎市寿町20番地 サンデン株式
会社内

(74)代理人 100095245

弁理士 坂口 嘉彦

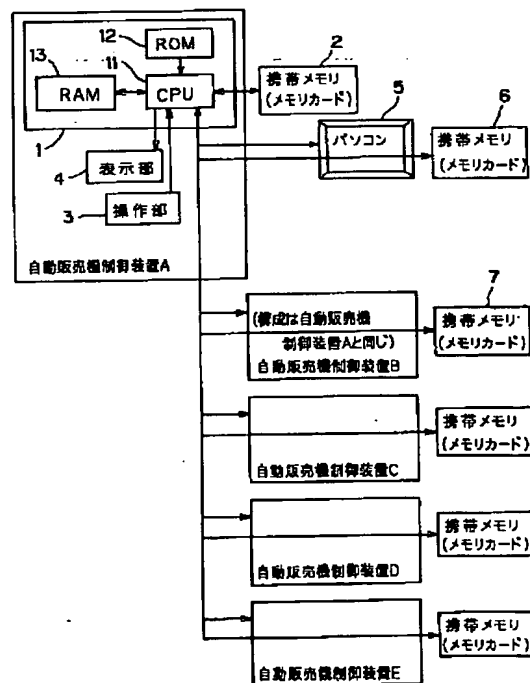
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(54)【発明の名称】 自動販売機制御装置

(57)【要約】

【課題】 自動販売機の制御データを確認、変更するための操作を行う操作手段と、操作手段の操作履歴に基づいて確認対象データを検索して表示し、変更対象データを変更する確認変更手段とを備える自動販売機制御装置であって、制御データを確認、変更する際の、自動販売機の操作要員の負荷が、従来に比べて少ない自動販売機制御装置を提供する。

【解決手段】 自動販売機の制御データを確認、変更するための操作を行う操作手段と、操作手段の操作履歴を記憶する操作履歴記憶手段と、操作履歴記憶手段から操作履歴を読み込む操作履歴読込手段と、読み込んだ操作履歴に基づいて制御データを検索表示し、変更する確認変更手段とを備える。



【特許請求の範囲】

【請求項 1】 自動販売機の制御データを確認、変更するための操作を行う操作手段と、操作手段の操作履歴を記憶する操作履歴記憶手段と、操作履歴記憶手段から操作履歴を読み込む操作履歴読込手段と、読み込んだ操作履歴に基づいて制御データを検索表示し、変更する確認変更手段とを備えることを特徴とする自動販売機制御装置。

【請求項 2】 操作履歴記憶手段は、自動販売機制御装置に着脱可能に装着された携帯メモリを有することを特徴とする請求項 1 に記載の自動販売機制御装置。

【請求項 3】 操作履歴記憶手段は、自動販売機制御装置内部メモリを有することを特徴とする請求項 1 又は 2 に記載の自動販売機制御装置。

【請求項 4】 操作履歴記憶手段は、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置に着脱可能に装着された携帯メモリを有することを特徴とする請求項 1 乃至 3 の何れか 1 項に記載の自動販売機制御装置。

【請求項 5】 操作履歴記憶手段は、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置内部メモリを有することを特徴とする請求項 1 乃至 4 の何れか 1 項に記載の自動販売機制御装置。

【請求項 6】 操作履歴記憶手段は、自動販売機制御装置に回線を介して接続されたパソコンに着脱可能に装着された携帯メモリを有することを特徴とする請求項 1 乃至 5 の何れか 1 項に記載の自動販売機制御装置。

【請求項 7】 操作履歴記憶手段は、自動販売機制御装置に回線を介して接続されたパソコン内部メモリを有することを特徴とする請求項 1 乃至 6 の何れか 1 項に記載の自動販売機制御装置。

【請求項 8】 操作履歴記憶手段は、自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続されたパソコンに着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続されたパソコン内部メモリ中の任意の組合せに係る複数のメモリを有し、更に、複数のメモリから操作履歴を記憶すべき所望のメモリを選択する第 1 メモリ選択手段を備えることを特徴とする請求項 1 に記載の自動販売機制御装置。

【請求項 9】 操作履歴記憶手段は、自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置内部メモリ、自動販売機

制御装置に回線を介して接続されたパソコンに着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続されたパソコン内部メモリ中の任意の組合せに係る複数のメモリを有し、更に、複数のメモリから操作履歴読込先のメモリを選択する第 2 メモリ選択手段を備えることを特徴とする請求項 1 に記載の自動販売機制御装置。

【請求項 10】 回線は専用回線であることを特徴とする請求項 4 乃至 9 の何れか 1 項に記載の自動販売機制御装置。

【請求項 11】 回線は公衆回線であることを特徴とする請求項 4 乃至 9 の何れか 1 項に記載の自動販売機制御装置。

【請求項 12】 操作履歴記憶手段は、複数の操作履歴を記憶可能であることを特徴とする請求項 1 乃至 11 の何れか 1 項に記載の自動販売機制御装置。

【請求項 13】 確認変更手段は、操作履歴読込手段が読み込んだ全ての操作履歴に基づいて、自動的に制御データの検索表示、変更を行うことを特徴とする請求項 1 2 に記載の自動販売機制御装置。

【請求項 14】 操作履歴読込手段が読み込んだ操作履歴中から、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を選択する第 1 操作履歴選択手段を備えることを特徴とする請求項 1 2 に記載の自動販売機制御装置。

【請求項 15】 操作履歴記憶手段が記憶する操作履歴には操作手段の操作が行われた時刻が含まれることを特徴とする請求項 1 2 に記載の自動販売機制御装置。

【請求項 16】 操作履歴記憶手段が記憶する操作履歴には操作手段の操作が行われた時刻が含まれ、確認変更手段は、最も最近に行われた操作履歴に基づいて制御データの検索表示、変更を行うことを特徴とする請求項 1 2 に記載の自動販売機制御装置。

【請求項 17】 操作履歴記憶手段が記憶する操作履歴には自動販売機の制御プログラムの識別データが含まれ、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれる操作履歴に基づいて制御データの検索表示、変更を行うことを特徴とする請求項 1 2 又は 1 5 に記載の自動販売機制御装置。

【請求項 18】 操作履歴記憶手段が記憶する操作履歴には自動販売機の機器設定データが含まれ、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる操作履歴に基づいて制御データの検索表示、変更を行うことを特徴とする請求項 1 2、1 5、1 7 の何れか 1 項に記載の自動販売機制御装置。

【請求項 19】 操作履歴記憶手段が記憶する操作履歴には自動販売機の制御プログラムの識別データと、自動

販売機の機器設定データとが含まれ、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれ、且つ当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる操作履歴に基づいて制御データの検索表示、変更を行うことを特徴とする請求項 12 に記載の自動販売機制御装置。

【請求項 20】 操作手段の操作が行われた時刻、自動販売機の制御プログラムの識別データ、自動販売機の機器設定データ中の任意の一つ又は複数を選択して操作履歴記憶手段に記憶させるデータ選択手段を備え、確認変更手段は、操作履歴記憶手段が記憶する操作履歴に操作手段の操作が行われた時刻が含まれる場合には、当該時刻を頼りに選択した操作履歴又は最も最近に記憶された操作履歴に基づいて制御データの検索表示、変更を行い、操作履歴記憶手段が記憶する操作履歴に自動販売機の制御プログラムの識別データが含まれる場合には、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれる操作履歴に基づいて制御データの検索表示、変更を行い、操作履歴記憶手段が記憶する操作履歴に自動販売機の機器設定データが含まれる場合には、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる操作履歴に基づいて制御データの検索表示、変更を行うことを特徴とする請求項 12 に記載の自動販売機制御装置。

【請求項 21】 確認変更手段は、依拠可能な操作履歴の全てに基づいて、自動的に制御データの検索表示、変更を行うことを特徴とする請求項 15、17、18、19、20 の何れか 1 項に記載の自動販売機制御装置。

【請求項 22】 確認変更手段が依拠可能な操作履歴の中から所望の操作履歴を選択する第 2 操作履歴選択手段を備えることを特徴とする請求項 15、17、18、19、20 の何れか 1 項に記載の自動販売機制御装置。

【請求項 23】 確認変更手段が変更した制御データを表示する制御データ表示手段を備えることを特徴とする請求項 1 乃至 22 の何れか 1 項に記載の自動販売機制御装置。

【請求項 24】 操作履歴記憶手段が記憶する操作履歴には操作手段の実際の操作間隔が含まれ、確認変更手段、制御データ表示手段は、操作履歴読込手段が読み込んだ操作履歴に含まれる操作間隔に等しい時間間隔で、制御データの検索表示、変更、表示を行うことを特徴とする請求項 23 に記載の自動販売機制御装置。

【請求項 25】 操作履歴記憶手段が記憶する操作履歴には操作手段の予め設定された操作間隔が含まれ、確認変更手段、制御データ表示手段は、操作履歴読込手段が読み込んだ操作履歴に含まれる操作間隔に等しい時間間

隔で、制御データの検索表示、変更、表示を行うことを特徴とする請求項 23 に記載の自動販売機制御装置。

【請求項 26】 確認変更手段、制御データ表示手段は、予め設定された時間間隔で制御データの検索表示、変更、表示を行うことを特徴とする請求項 23 に記載の自動販売機制御装置。

【請求項 27】 操作履歴記憶手段が記憶する操作履歴には操作手段の実際の操作間隔又は予め設定された操作間隔が含まれ、確認変更手段、制御データ表示手段は、操作履歴読込手段が読み込んだ操作履歴に含まれる操作間隔に等しい時間間隔又は予め設定された時間間隔で、制御データの検索表示、変更、表示を行い、更に、操作履歴に含まれる操作間隔に等しい時間間隔で制御データの検索表示、変更、表示を行うか或いは予め設定された時間間隔で制御データの検索表示、変更、表示を行うかを選択する時間間隔選択手段を備えることを特徴とする請求項 23 に記載の自動販売機制御装置。

【請求項 28】 操作間隔を予め設定する操作間隔設定手段を備えることを特徴とする請求項 25 又は 27 に記載の自動販売機制御装置。

【請求項 29】 確認変更手段、制御データ表示手段が制御データの検索表示、変更、表示を行う時間間隔を設定する時間間隔設定手段を備えることを特徴とする請求項 26 又は 27 に記載の自動販売機制御装置。

【請求項 30】 操作履歴記憶手段が記憶した操作履歴を編集する操作履歴編集手段を備えることを特徴とする請求項 1 乃至 29 の何れか 1 項に記載の自動販売機制御装置。

【請求項 31】 操作手段の操作中に、操作履歴記憶手段が記憶中の操作履歴を消去する操作履歴消去手段を備えることを特徴とする請求項 1 乃至 30 の何れか 1 項に記載の自動販売機制御装置。

【請求項 32】 操作履歴読込手段の作動中に操作履歴の読込を中断させる読込中断手段と、中断した操作履歴の読込を再開させる読込再開手段とを備えることを特徴とする請求項 1 乃至 31 の何れか 1 項に記載の自動販売機制御装置。

【請求項 33】 操作履歴読込手段の作動中は、読込中断時にのみ、制御データを確認、変更するための操作手段の操作を許容することを特徴とする請求項 32 に記載の自動販売機制御装置。

【請求項 34】 操作履歴読込手段の作動中、制御データを確認、変更するための操作手段の操作を随時許容することを特徴とする請求項 32 に記載の自動販売機制御装置。

【請求項 35】 確認変更手段が変更した制御データを消去して従前の制御データを復旧させる制御データ復旧手段を備えることを特徴とする請求項 1 乃至 34 の何れか 1 項に記載の自動販売機制御装置。

【請求項 36】 操作履歴記憶手段による操作履歴の記

憶開始時、操作履歴の記憶中、操作履歴の記憶終了時に、操作履歴記憶手段が各作動状態にあることを表示する表示手段を備えることを特徴とする請求項1乃至35の何れか1項に記載の自動販売機制御装置。

【請求項37】 操作履歴読込手段による操作履歴の読込開始時、読込中、読込中断中、読込再開時、読込終了時に、操作履歴読込手段が各作動状態にあることを表示する表示手段を備えることを特徴とする請求項1乃至36の何れか1項に記載の自動販売機制御装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、自動販売機の制御データを確認、変更するための操作を行う操作手段と、操作手段の操作履歴に基づいて確認対象データを検索して表示し、変更対象データを変更する確認変更手段とを備える自動販売機制御装置に関するものである。

【0002】

【従来の技術】上記構成を有する自動販売機制御装置においては、従来、制御データの確認、変更作業の度毎に、自動販売機の操作要員は、リモコン装置等の操作手段を複雑に手動操作していた。また、複数の自動販売機制御装置に対して、同一の制御データの確認、変更作業を行う場合には、自動販売機の操作要員は、各自動販売機制御装置毎に、リモコン装置等の操作手段を複雑に手動操作していた。

【0003】

【発明が解決しようとする課題】従来の自動販売機制御装置においては、制御データの確認、変更作業の度毎にリモコン装置等の操作手段を複雑に手動操作していたので、また複数の自動販売機制御装置に対して、同一の制御データの確認、変更作業を行う場合に、各自動販売機制御装置毎にリモコン装置等の操作手段を複雑に手動操作していたので、操作要員の負荷が大きかった。本発明は上記問題に鑑みてなされたものであり、自動販売機の制御データを確認、変更するための操作を行う操作手段と、操作手段の操作履歴に基づいて確認対象データを検索して表示し、変更対象データを変更する確認変更手段とを備える自動販売機制御装置であって、制御データを確認、変更する際の、自動販売機の操作要員の負荷が、従来に比べて少ない自動販売機制御装置を提供することを目的とする。

【0004】

【課題を解決するための手段】上記課題を解決するために、本発明においては、自動販売機の制御データを確認、変更するための操作手段と、操作手段の操作履歴を記憶する操作履歴記憶手段と、操作履歴記憶手段から操作履歴を読み込む操作履歴読込手段と、読み込んだ操作履歴に基づいて確認対象データを検索して表示し、変更対象データを変更する確認変更手段とを備えることを特徴とする自動販売機制御装置を提供する。

【0005】本発明に係る自動販売機制御装置においては、予め操作手段を複雑に手動操作して、本制御装置が組み込まれた自動販売機の種々の制御データを確認、変更するための種々の操作履歴を操作履歴記憶手段に記憶させておけば、その後は、状況に応じて操作履歴記憶手段から所望の操作履歴を操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、確認変更手段が、確認対象制御データを検索表示し、変更対象制御データを変更するので、従来のように制御データの確認、

10 変更作業の度毎に操作手段を複雑に手動操作する必要は無い。また、例えば自動販売機制御装置Aの操作履歴記憶手段が記憶した自動販売機制御装置Aの操作手段の操作履歴を、自動販売機制御装置B、C、D、Eの操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置B、C、D、Eの確認変更手段が、自動販売機制御装置B、C、D、Eが組み込まれた自動販売機の制御データを検索表示し、変更するので、自動販売機制御装置B、C、D、Eで自動販売機制御装置Aと同一の制御データの確認、変更作業を行う場合に、各自動販売機制御装置毎に操作手段を複雑に手動操作する必要は無い。従って、本発明に係る自動販売機制御装置においては、制御データを確認、変更する際の、自動販売機の操作要員の負荷が従来に比べて少ない。

【0006】本発明の好ましい態様においては、操作履歴記憶手段は、自動販売機制御装置に着脱可能に装着された携帯メモリを有する。自動販売機制御装置Aが組み込まれた自動販売機の種々の制御データの確認、変更をするための自動販売機制御装置Aの操作手段の種々の操作履歴を、自動販売機制御装置Aの操作履歴記憶手段が有する携帯メモリに記憶させることができる。前記携帯メモリを自動販売機制御装置Aに装着し、前記携帯メモリから所望の操作履歴を自動販売機制御装置Aの操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置Aの確認変更手段が、自動販売機制御装置Aが組み込まれた自動販売機の制御データを検索表示し、変更する。自動販売機制御装置Aの操作履歴記憶手段が有する携帯メモリが記憶した自動販売機制御装置Aの操作手段の操作履歴を、前記携帯メモリを自動販売機制御装置B、C、D、Eに装着し、自動販売機制御装置B、C、D、Eの操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置B、C、D、Eの確認変更手段が、自動販売機制御装置B、C、D、Eが組み込まれた自動販売機の制御データを検索表示し、変更する。携帯メモリは持ち運びに便利である。

【0007】本発明の好ましい態様においては、操作履歴記憶手段は、自動販売機制御装置内部メモリを有する。自動販売機制御装置Aが組み込まれた自動販売機の種々の制御データの確認、変更をするための自動販売機

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【0010】本発明の好ましい態様においては、操作履歴記憶手段は、自動販売機制御装置に回線を介して接続されたパソコンに着脱可能に装着された携帯メモリを有する。自動販売機制御装置Aが組み込まれた自動販売機の種々の制御データの確認、変更をするための自動販売機制御装置Aの操作手段の種々の操作履歴を、回線を介して自動販売機制御装置Aに接続されたパソコンに着脱可能に装着された携帯メモリに記憶させることができる。前記携帯メモリを自動販売機制御装置Aに装着して、前記携帯メモリから所望の操作履歴を自動販売機制御装置Aの操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置Aの確認変更手段が、自動販売機制御装置Aが組み込まれた自動販売機の制御データを検索表示し、変更する。前記携帯メモリが記憶した自動販売機制御装置Aの操作手段の操作履歴を、前記携帯メモリを自動販売機制御装置B、C、D、Eに装着して自動販売機制御装置B、C、D、Eの操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置B、C、D、Eの確認変更手段が、自動販売機制御装置B、C、D、Eが組み込まれた自動販売機の制御データを検索表示し、変更する。携帯メモリは持ち運びに便利である。

【0011】本発明の好ましい態様においては、操作履歴記憶手段は、自動販売機制御装置に回線を介して接続されたパソコン内部メモリを有する。自動販売機制御装置Aが組み込まれた自動販売機の種々の制御データの確認、変更をするための自動販売機制御装置Aの操作手段の種々の操作履歴を、回線を介して自動販売機制御装置Aに接続されたパソコン内部メモリに記憶させることができる。前記パソコン内部メモリから、所望の操作履歴を、回線を介して自動販売機制御装置Aの操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づい

て、自動販売機制御装置 A の確認変更手段が、自動販売機制御装置 A が組み込まれた自動販売機の制御データを検索表示し、変更する。前記パソコン内部メモリが記憶した自動販売機制御装置 A の操作手段の操作履歴を、回線を介してパソコンに接続された自動販売機制御装置 B、C、D、E の操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置 B、C、D、E の確認変更手段が、自動販売機制御装置 B、C、D、E が組み込まれた自動販売機の制御データを検索表示し、変更する。携帯メモリのように持ち運ぶ必要が無いので便利である。

【0012】本発明の好ましい態様においては、操作履歴記憶手段は、自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続されたパソコンに着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続されたパソコン内部メモリ中の任意の組合せに係る複数のメモリを有し、自動販売機制御装置は、更に、操作手段の操作履歴を記憶させるメモリを選択する第 1 メモリ選択手段を備える。操作履歴記憶手段が、多様な形態のメモリを有しており、且つ多様な形態のメモリから操作履歴を記憶させるメモリを選択できれば、操作履歴を記憶させる際の自由度が増し、自動販売機制御装置の使用性が向上する。

【0013】本発明の好ましい態様においては、操作履歴記憶手段は、自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置に着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続された他の自動販売機制御装置内部メモリ、自動販売機制御装置に回線を介して接続されたパソコンに着脱可能に装着された携帯メモリ、自動販売機制御装置に回線を介して接続されたパソコン内部メモリ中の任意の組合せに係る複数のメモリを有し、自動販売機制御装置は、更に、操作履歴読込先のメモリを選択する第 2 メモリ選択手段を備える。操作履歴記憶手段が、多様な形態のメモリを有しており、且つ多様な形態のメモリから、操作履歴読込先のメモリを選択できれば、操作履歴を読み込む際の自由度が増し、自動販売機制御装置の使用性が向上する。

【0014】本発明の好ましい態様においては、回線は専用回線である。本発明の好ましい態様においては、回線は公衆回線である。回線は専用回線でも良く或いは公衆回線でも良い。

【0015】本発明の好ましい態様においては、操作履歴記憶手段は、複数の操作履歴を記憶可能である。一つ

の操作履歴記憶手段が複数の操作履歴を記憶可能であれば、一つの操作履歴に付き一つの操作履歴記憶手段を配設する必要がないので、自動販売機制御装置の製造コストの高騰を抑制できる。

【0016】本発明の好ましい態様においては、確認変更手段は、操作履歴読込手段が読み込んだ全ての操作履歴に基づいて、自動的に制御データの検索表示、変更を行う。確認変更手段による制御データの検索表示、変更が、操作履歴読込手段が読み込んだ全ての操作履歴に基づいて自動的に行われる場合には、自動販売機の操作要員の負荷が略零まで大幅に軽減される。

【0017】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴読込手段が読み込んだ操作履歴中から、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を選択する第 1 操作履歴選択手段を備える。操作履歴読込手段が読み込んだ操作履歴中から、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を選択することができれば、制御データ確認、変更作業の自由度が増し、自動販売機制御装置の使用性が向上する。

【0018】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には操作手段の操作が行われた時刻が含まれる。操作履歴記憶手段に複数の操作履歴を記憶させる場合、操作履歴記憶手段が記憶する操作履歴に操作手段の操作が行われた時刻が含まれれば、当該時刻データが操作履歴の識別データとなるので、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を、読み込まれた操作履歴の中から、前記識別データを頼りに選択することが可能となる。

【0019】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には操作手段の操作が行われた時刻が含まれ、確認変更手段は、最も最近に行われた操作履歴に基づいて制御データの検索表示、変更を行う。操作履歴記憶手段に複数の操作履歴が記憶されている場合、最も最近に行われた操作履歴が一般に現時点で最も好ましいので、最も最近に行われた操作履歴に基づいて制御データの検索表示、変更を行えば、問題が発生する危険性が少ない。

【0020】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には自動販売機の制御プログラムの識別データが含まれ、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれる操作履歴に基づいて制御データの検索表示、変更を行う。自動販売機の制御プログラムは、自動販売機の機種によって異なり、且つ適宜改変される。自動販売機制御装置 A の操作手段の操作履歴に基づいて、自動販売機制御装置 A が組み込まれた自動販売機 A' の制御プログラムとは異なる制御プログラムで制御される自動販売機 B' に組み込まれた自動販売機制御装

置Bの確認変更手段が、自動販売機B'の制御データを検索表示し、変更すると、自動販売機制御装置Bひいては自動販売機B'が誤作動を起こす可能性がある。操作履歴に、制御プログラム名、制御プログラム作成年度、制御プログラムのバージョン番号等の制御プログラムの識別データを含ませておき、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれる操作履歴に基づいて制御データの検索表示、変更を行うように構成すれば、異なる制御プログラムの下に行われた操作手段の操作履歴に基づいて制御データを検索表示し、変更することによって惹起される自動販売機制御装置の誤作動、ひいては自動販売機の誤作動を防止することができる。

【0021】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には自動販売機の機器設定データが含まれ、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる操作履歴に基づいて制御データの検索表示、変更を行う。自動販売機の制御プログラムの識別データが同一であっても、すなわち自動販売機の制御プログラムが同一であっても、自動販売機制御装置Aが組み込まれた自動販売機A'と自動販売機制御装置Bが組み込まれた自動販売機B'とでは、稼働中の商品収納コラム数、稼働中の商品選択ボタン数等の機器設定条件が異なる場合がある。かかる場合、自動販売機制御装置Aの操作手段の操作履歴に基づいて、自動販売機制御装置Bの確認変更手段が手段が、自動販売機B'の制御データを検索表示し、変更すると、自動販売機制御装置Bひいては自動販売機B'が誤作動を起こす可能性がある。操作履歴に、稼働中の商品収納コラム数、稼働中の商品選択ボタン数等の自動販売機の機器設定データを含ませておき、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる操作履歴に基づいて制御データの検索表示、変更を行うように構成すれば、機器設定条件が異なる自動販売機のための操作手段の操作履歴に基づいて制御データを検索表示し、変更することによって惹起される自動販売機制御装置の誤作動、ひいては自動販売機の誤作動を防止することができる。

【0022】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと、自動販売機の機器設定データとが含まれ、確認変更手段は、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれ、且つ当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる

操作履歴に基づいて制御データの検索表示、変更を行う。同一の制御プログラム、同一の機器設定条件の自動販売機のための操作手段の操作履歴に基づいて制御データを検索表示し、変更すれば、制御プログラムの相違、機器設定条件の相違によって惹起される自動販売機制御装置の誤作動、ひいては自動販売機の誤作動を防止することができる。

【0023】本発明の好ましい態様においては、自動販売機制御装置は、操作手段の操作が行われた時刻、自動販売機の制御プログラムの識別データ、自動販売機の機器設定データ中の任意の一つ又は複数を選択して操作履歴記憶手段に記憶させるデータ選択手段を備え、確認変更手段は、操作履歴記憶手段が記憶する操作履歴に操作手段の操作が行われた時刻が含まれる場合には、当該時刻を頼りに選択された操作履歴に基づいて制御データの検索表示、変更を行うことが可能であり、操作履歴記憶手段が記憶する操作履歴に自動販売機の制御プログラムの識別データが含まれる場合には、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の制御プログラムの識別データと同一の識別データが含まれる操作履歴に基づいて制御データの検索表示、変更を行い、操作履歴記憶手段が記憶する操作履歴に自動販売機の機器設定データが含まれる場合には、当該確認変更手段を備える自動販売機制御装置が組み込まれた自動販売機の機器設定データと同一の機器設定データが含まれる操作履歴に基づいて制御データの検索表示、変更を行う。

【0024】本発明に係る自動販売機制御装置が組み込まれる複数の自動販売機の制御プログラム、機器設定条件が全て同一の場合には、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を、操作手段の操作が行われた時刻に基づいて選択すれば良い。本発明に係る自動販売機制御装置が組み込まれる複数の自動販売機の制御プログラムが全て同一の場合には、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を、操作手段の操作が行われた時刻及び／又は機器設定データに基づいて選択すれば良い。本発明に係る自動販売機制御装置が組み込まれる複数の自動販売機の機器設定データが全て同一の場合には、確認変更手段が制御データの検索表示、変更を行う際に依拠する操作履歴を、操作手段の操作が行われた時刻及び／又は制御プログラム識別データに基づいて選択すれば良い。従って、対象となる複数の自動販売機の状況に応じて、操作手段の操作が行われた時刻、自動販売機の制御プログラムの識別データ、自動販売機の機器設定データ中の任意の一つ又は複数を選択して操作履歴記憶手段に記憶させるデータ選択手段を配設することは有用である。

【0025】本発明の好ましい態様においては、確認変更手段は、依拠可能な操作履歴の全てに基づいて、自動的に制御データの検索表示、変更を行う。操作手段の操

作が行われた時刻、自動販売機の制御プログラムの識別データ、自動販売機の機器設定データ等に照らして、確認変更手段が制御データの検索表示、変更を行う際に依拠可能な操作履歴が複数ある場合に、確認変更手段が、依拠可能な操作履歴の全てに基づいて、自動的に制御データの検索表示、変更を行えば、自動販売機の操作要員の負荷は略零まで大幅に軽減される。

【0026】本発明の好ましい態様においては、自動販売機制御装置は、確認変更手段が依拠可能な操作履歴の中から所望の操作履歴を選択する第2操作履歴選択手段を備える。操作手段の操作が行われた時刻、自動販売機の制御プログラムの識別データ、自動販売機の機器設定データ等に照らして、確認変更手段が制御データの検索表示、変更を行う際に依拠可能な操作履歴が複数ある場合でも、当該複数の操作履歴中の特定の操作履歴に基づいて制御データの確認、変更を行いたい場合がある。係る場合に、確認変更手段が依拠可能な操作履歴の中から所望の操作履歴を選択する第2操作履歴選択手段があれば、便利である。

【0027】本発明の好ましい態様においては、自動販売機制御装置は、確認変更手段が変更した制御データを表示する制御データ表示手段を備える。確認変更手段が変更した制御データを表示すれば、自動販売機の操作要員は制御データの内容を確認することができる。この結果、制御データが不適切に変更される等の不都合な事態の発生が防止される。

【0028】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には操作手段の実際の操作間隔が含まれ、確認変更手段、制御データ表示手段は、操作履歴読込手段が読み込んだ操作履歴に含まれる操作間隔に等しい時間間隔で、制御データの検索表示、変更、表示を行う。操作履歴読込手段が読み込んだ操作履歴に含まれる操作手段の実際の操作間隔に等しい時間間隔で、制御データの検索表示、変更、表示が行われれば、自動販売機の操作要員は制御データの内容を明確に視認することができる。この結果、制御データが不適切に変更される等の不都合な事態の発生が防止される。

【0029】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には操作手段の予め設定された操作間隔が含まれ、確認変更手段、制御データ表示手段は、操作履歴読込手段が読み込んだ操作履歴に含まれる操作間隔に等しい時間間隔で、制御データの検索表示、変更、表示を行う。操作履歴読込手段が読み込んだ操作履歴に含まれる予め設定された操作間隔に等しい時間間隔で、制御データの検索表示、変更、表示が行われれば、予め設定された操作間隔が長い場合には、自動販売機の操作要員は制御データの内容を明確に視認することができるので、制御データが不適切に変更される等の不都合な事態の発生が防止され、予め設定された操作間隔が短い場合には、制御データの確認、変更作業に要

する時間が短縮される。

【0030】本発明の好ましい態様においては、確認変更手段、制御データ表示手段は、予め設定された時間間隔で制御データの検索表示、変更、表示を行う。操作履歴に操作手段の操作間隔が含まれるか否かに係わらず、或いは操作履歴に含まれる操作手段の操作間隔の如何に係わらず、予め設定された時間間隔で制御データの検索表示、変更、表示が行われれば、予め設定された操作間隔が長い場合には、自動販売機の操作要員は制御データの内容を明確に視認することができるので、制御データが不適切に変更される等の不都合な事態の発生が防止され、予め設定された操作間隔が短い場合には、制御データの確認、変更作業に要する時間が短縮される。

【0031】本発明の好ましい態様においては、操作履歴記憶手段が記憶する操作履歴には操作手段の実際の操作間隔又は予め設定された操作間隔が含まれ、確認変更手段、制御データ表示手段は、操作履歴読込手段が読み込んだ操作履歴に含まれる操作間隔に等しい時間間隔又は予め設定された時間間隔で、制御データの検索表示、変更、表示を行い、更に、自動販売機制御装置は、操作履歴に含まれる操作間隔に等しい時間間隔で制御データの検索表示、変更、表示を行うか或いは予め設定された時間間隔で制御データの検索表示、変更、表示を行うかを選択する時間間隔選択手段を備える。操作履歴に含まれる操作手段の操作間隔に等しい時間間隔で制御データの検索表示、変更、表示を行うか、或いは予め設定された時間間隔で制御データの検索表示、変更、表示を行うか選択できれば便利である。

【0032】本発明の好ましい態様においては、自動販売機制御装置は、操作間隔を予め設定する操作時間設定手段を備える。操作履歴記憶手段が記憶する操作間隔を任意に設定できれば便利である。

【0033】本発明の好ましい態様においては、自動販売機制御装置は、確認変更手段、制御データ表示手段が制御データの検索表示、変更、表示を行う時間間隔を設定する時間間隔設定手段を備える。制御データの検索表示、変更、表示を行う時間間隔を設定する時間間隔を任意に設定できれば便利である。

【0034】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴記憶手段が記憶した操作履歴を編集する操作履歴編集手段を備える。操作履歴記憶手段が記憶した操作履歴を編集することができれば、現状に適した操作履歴に基づいて、制御データを確認、変更することができる。

【0035】本発明の好ましい態様においては、自動販売機制御装置は、操作手段の操作中に、操作履歴記憶手段が記憶中の操作履歴を消去する操作履歴消去手段を備える。操作手段の操作中に操作ミスを行った場合、操作履歴記憶手段が記憶中の操作履歴を消去することができれば、操作手段の操作をやり直して、正しい操作履歴を

操作履歴記憶手段に記憶させることができるので、便利である。

【0036】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴読込手段の作動中に操作履歴の読込を中断させる読込中断手段と、中断した操作履歴の読込を再開させる読込再開手段とを備える。読み込んだ操作履歴中の特定の操作を修正したい場合、操作履歴読込手段の作動中に操作履歴の読込を中断させ、操作手段を用いて修正操作を行い、その後中断した操作履歴の読込を再開することができれば便利である。

【0037】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴読込手段の作動中は、読込中断時にのみ、制御データを確認、変更するための操作手段の操作を許可する。操作履歴読込手段の作動中は、読込中断時にのみ、制御データを確認、変更するための操作手段の操作を許可するように自動販売機制御装置を構成することにより、操作履歴読込手段の作動中に操作手段が誤って操作されて、操作履歴が誤って修正される事態の発生が防止される。

【0038】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴読込手段の作動中、制御データを確認、変更するための操作手段の操作を随時許可する。制御データの検索表示、変更、表示が十分に長い時間間隔で行われる場合には、検索表示された制御データ、変更された制御データを視認した自動販売機の商品要員が、視認した制御データが不適切な場合に、前記時間間隔中に操作手段を操作して制御データを修正することが、物理的に十分可能である。従って、操作履歴読込手段の作動中に、制御データを確認、変更するための操作手段の操作を随時許可するように、自動販売機制御装置を構成することは有用である。

【0039】本発明の好ましい態様においては、自動販売機制御装置は、確認変更手段が変更した制御データを消去して従前の制御データを復旧させる制御データ復旧手段を備える。変更後の制御データが不適切である場合、当該制御データを消去し従前の制御データを復旧させることができれば便利である。

【0040】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴記憶手段による操作履歴の記憶開始時、操作履歴の記憶中、操作履歴の記憶終了時に、操作履歴記憶手段が各作動状態にあることを表示する表示手段を備える。操作履歴記憶手段の作動状態を把握できれば便利である。

【0041】本発明の好ましい態様においては、自動販売機制御装置は、操作履歴読込手段による操作履歴の読込開始時、読込中、読込中断中、読込再開時、読込終了時に、操作履歴読込手段が各作動状態にあることを表示する表示手段を備える。操作履歴読込手段の作動状態を把握できれば便利である。

【0042】

【発明の実施の形態】本発明の実施例を説明する。図1に示すように、自動販売機制御装置Aは、CPU11と、自動販売機制御装置Aが組み込まれた自動販売機A'（図示せず）の制御プログラムが格納されたROM12とRAM13とを有する制御部1と、制御部1に着脱可能に装着されたメモリカード等の携帯メモリ2と、リモコン装置と自動販売機A'の商品選択鈕とを有する操作部3と、表示部4とを備えている。操作部3のリモコン装置には複数の入力キーが配設されている。CPU11に、専用回線又は公衆回線を介してパソコン5が接続されており、パソコン5にメモリカード等の携帯メモリ6が着脱可能に装着されている。CPU11に、専用回線又は公衆回線を介して、自動販売機制御装置Aと同様の構成を有する自動販売機制御装置B、C、D、Eが接続されている。自動販売機制御装置B、C、D、Eは、自動販売機B'、C'、D'、E'（図示せず）に組み込まれている。自動販売機制御装置Bの制御部には、携帯メモリ7が着脱可能に装着されている。自動販売機制御装置C、D、Eの制御部にも同様の携帯メモリが着脱可能に装着されている。

【0043】本実施例に係る自動販売機制御装置の操作履歴記憶作動を説明する。自動販売機の商品要員は、価格データ、温度制御データ、売上データ等の確認、変更したい自動販売機A'の制御データに応じて、自動販売機制御装置Aの操作部3を構成するリモコン装置の入力キーを、或いは自動販売機制御装置Aの操作部3を構成するリモコン装置と自動販売機A'の商品選択鈕とを所定の手順に従い順次押す。例えば、自動販売機A'の商品収納コラムαに収納された商品の価格データを変更する場合には、図2に示すように、操作部3のリモコン装置の「開始」キーを押し、次いで商品収納コラムαに対応する自動販売機A'の商品選択鈕を押し、次いで操作部3のリモコン装置の「アップ」キーと「ダウン」キーとを適宜に押して価格をβ円に変更し、最後に操作部3のリモコン装置の「終了」キーを押す。

【0044】リモコン装置の入力キーと商品選択鈕とを含む操作部3の入力キーの個々の操作履歴、より具体的には、「開始」キー操作、「商品選択鈕」操作、「アップ」キー操作、「ダウン」キー操作、「終了」キー操作等の個々の操作履歴は、逐次、RAM13内に確保された所定の一時記憶領域であるキーバッファに入力される。CPU11は、ROM12から読み込んだ自動販売機A'の制御プログラムに従い、キーバッファに逐次入力される操作部3の入力キーの個々の操作履歴に基づいて、CPU11内の所定の記憶領域に記憶した自動販売機A'の制御データを検索して表示部4に表示し、或いはCPU11内の所定の記憶領域に記憶した自動販売機A'の制御データを変更して表示部4に表示する。

【0045】例えば、「商品選択鈕a」操作がキーバッファに入力されると、CPU11は、自己の所定の記憶

領域に記憶している、商品選択釦aに対応する商品収納
 コラムαに収納された商品の価格データ110円を表示
 部4に表示し、次いで「アップ」キー操作がキーバッ
 ファに入力されると、CPU11は前記価格データを12
 0に変更し、価格120円を表示部4に表示し、次いで
 「アップ」キー操作がキーバッファに入力されると、C
 PU11は前記価格データを130に変更し、価格13
 0円を表示部4に表示し、次いで「ダウン」キー操作が
 キーバッファに入力されると、CPU11は前記価格デ
 ータを120に変更し、価格120円を表示部4に表示
 する。

【0046】「開始」キーの操作で始まった操作部3の
 入力キーの一連の操作履歴が「終了」キーの操作で終
 了すると、CPU11は、制御データの検索表示、変更作
 動を終了する。

【0047】CPU11は、ROM12から読み込んだ
 自動販売機A'の制御プログラムに従い、キーバッファ
 に逐次入力される操作部3の入力キーの個々の操作履
 歴を、RAM13内に確保された所定の一時記憶領域で
 あるバッファに逐次コピーする。「開始」キーの操作で
 始まった操作部3の入力キーの一連の操作履歴が「終
 了」キーの操作で終了すると、CPU11は、ROM12か
 ら読み込んだ自動販売機A'の制御プログラムに従い、
 バッファにコピーした操作部3の入力キーの一連の操作
 履歴の全体を、RAM13内に確保した所定の記憶領域
 に記憶させ、或いは携帯メモリ2へ出力して携帯メモ
 リ2に記憶させ、或いはパソコン5へ出力してパソコン
 5のRAMに記憶させ、或いはパソコン5へ出力してパ
 ソコン5に装着された携帯メモリ6に記憶させ、或い
 は自動販売機制御装置Bへ出力して自動販売機制御装
 置BのRAMに記憶させ、或いは自動販売機制御装置B
 へ出力して自動販売機制御装置Bに装着された携帯メ
 モリ7に記憶させる。操作履歴の記憶先の選択は、自
 動販売機
 の操作要員が操作部3の入力キーを操作することによ
 り行われ、或いはROM12から読み込んだ自動販売機
 A'の制御プログラムに従って自動的に行われる。複数
 の記憶
 先が選択されれば、当該複数の記憶先が操作履歴を記
 憶する。

【0048】自動販売機
 の操作要員が、「開始」キーの操作で始まり「終了」キ
 ーの操作で終了する操作部3の入力キーの一連の操作
 履歴（以下の文章において、「操作部3の入力キーの一
 連の操作履歴」を単に「操作部3の操作履歴」と呼ぶ）
 を複数回繰り返すと、その都度自動販売機A'の制御
 データが検索表示され、変更され、且つ操作部3の複
 数の操作履歴が、RAM13内に確保した所定の記憶
 領域に記憶され、或いは携帯メモリ2に記憶され、或
 いはパソコン5のRAMに記憶され、或いはパソコン5
 に装着された携帯メモリ6に記憶され、或いは自動販
 売機制御装置BのRAMに記憶され、或いは自動販売
 機制御装置Bに装着された携帯メモリ7に記憶

され、或いは上記のメモリ中の複数のメモリに記憶さ
 れる。

【0049】本実施例に係る自動販売機制御装置の操作
 履歴読込作動の第1の態様を説明する。自動販売機の操
 作要員が、操作部3の入力キーを操作して、操作履歴読
 込作動を開始させると、CPU11は、自身の所定の記憶
 領域に記憶した従前の制御データをRAM13内の所定
 の記憶領域にコピーして一時的に退避させる。CPU
 11は、ROM12から読み込んだ自動販売機A'の制
 御プログラムに従い、RAM13内の所定の記憶領域が
 記憶した操作部3の種々の操作履歴をRAM13内のバ
 ッファにコピーし、或いは自動販売機制御装置Aに装着
 した携帯メモリ2が記憶した操作部3の種々の操作履歴
 をRAM13内のバッファにコピーし、或いはパソコン
 5のRAMが記憶した操作部3の種々の操作履歴をRA
 M13内のバッファにコピーし、或いはパソコン5に装
 着した携帯メモリ6が記憶した操作部3の種々の操作履
 歴をRAM13内のバッファにコピーし、或いは自動販
 売機制御装置BのRAMが記憶した操作部3の種々の操
 作履歴をRAM13内のバッファにコピーし、或いは自
 動販売機制御装置Bに装着した携帯メモリ7が記憶した
 操作部3の種々の操作履歴をRAM13内のバッファに
 コピーし、或いは自動販売機制御装置Aに装着した携帯
 メモリ6、7が記憶した操作部3の種々の操作履歴をR
 AM13内のバッファにコピーし、或いはパソコン5に
 装着した携帯メモリ2、7が記憶した操作部3の種々の
 操作履歴をRAM13内のバッファにコピーし、或いは
 自動販売機制御装置Bに装着した携帯メモリ2、6が記
 憶した操作部3の種々の操作履歴をRAM13内のバッ
 ファにコピーする。操作履歴の読込先の選択は、自動販
 売機
 の操作要員が操作部3の入力キーを操作することによ
 り行われ、或いはROM12から読み込んだ自動販売機
 A'の制御プログラムに従って自動的に行われる。

【0050】CPU11は、ROM12から読み込んだ
 自動販売機A'の制御プログラムに従い、RAM13内
 のバッファにコピーした操作部3の種々の操作履歴の全
 てについて、前記操作履歴を構成する操作部3の入力キ
 ーの個々の操作履歴、例えば「アップ」キー操作、「ダ
 ウン」キー操作等を、自動的に逐次、RAM13内のキ
 ーバッファにコピーし、或いは、自動販売機
 の操作要員が操作部3の入力キーを操作して、RAM13
 内のバッファにコピーされた操作部3の種々の操作履歴
 から選択した特定の操作履歴について、当該操作履歴を
 構成する操作部3の入力キーの個々の操作履歴を、逐次
 RAM13内のキーバッファにコピーする。

【0051】CPU11は、ROM12から読み込んだ
 自動販売機A'の制御プログラムに従い、RAM13内
 のキーバッファに逐次コピーした操作部3の入力キーの
 個々の操作履歴に基づいて、CPU11内の所定の記憶
 領域に記憶した自動販売機A'の制御データを検索して

表示部4に表示し、或いは、CPU11内の所定の記憶領域に記憶した自動販売機A'の制御データを変更し、且つ表示部4に表示する。「開始」キーの操作で始まった操作部3の操作履歴が「終了」キーの操作で終了すると、CPU11による制御データの検索表示、変更が終了する。複数の操作履歴がキーバッファにコピーされると、複数の制御データが検索表示され、変更される。CPU11は、ROM12から読み込んだ自動販売機A'の制御プログラムと、自己の前記所定の記憶領域に記憶した制御データとに基づいて、自動販売機A'の作動を制御する。

【0052】上記説明から分かるように、自動販売機の操作要員は、一度種々のメモリの何れかに操作部3の種々の操作履歴を記憶させておけば、以降は、自動販売機A'の制御データを確認、変更する際に、従来のように制御データの確認、変更の度毎に操作部3を複雑に操作する必要は無い。従って、本実施例に係る自動販売機制御装置においては、制御データを確認、変更する際の自動販売機の操作要員の負荷が従来に比べて少ない。

【0053】本実施例に係る自動販売機制御装置の操作履歴読込作動の第2の態様を説明する。自動販売機の操作要員は、自動販売機制御装置Aの操作部3の操作履歴を記憶した携帯メモリ2を自動販売機制御装置Aから取り外し、或いは自動販売機制御装置Aの操作部3の操作履歴を記憶した携帯メモリ6をパソコン5から取り外し、或いは自動販売機制御装置Aの操作部3の操作履歴を記憶した携帯メモリ7を自動販売機制御装置Bから取り外し、自動販売機制御装置A、B、C、D、Eに装着する。自動販売機の操作要員が自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作すると、自動販売機制御装置A、B、C、D、EのCPUは、自身の所定の記憶領域に記憶した従前の制御データを自動販売機制御装置A、B、C、D、EのRAM内の所定の記憶領域にコピーして一時的に退避させる。自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに従い、携帯メモリ2、或いは携帯メモリ6、或いは携帯メモリ7が記憶した、自動販売機制御装置Aの操作部3の操作履歴を、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーする。

【0054】自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに従い、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーした操作部3の操作履歴を構成する、操作部3の入力キーの個々の操作履歴を、逐次、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファにコピーする。

【0055】自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに従い、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに逐次コピーした操作部3の入力キーの個々の操作履歴に基づいて、自動販売機制御装置A、B、C、D、EのCPU内の所定の記憶領域に記憶した自動販売機A'、B'、C'、D'、E'の制御データを検索して、自動販売機制御装置A、B、C、D、Eの表示部に表示し、或いは自動販売機制御装置A、B、C、D、EのCPU内の所定の記憶領域に記憶した自動販売機A'、B'、C'、D'、E'の制御データを変更し、且つ自動販売機制御装置A、B、C、D、Eの表示部に表示する。「開始」キーの操作で始まった操作部3の操作履歴が「終了」キーの操作で終了すると、自動販売機制御装置A、B、C、D、EのCPUによる自動販売機A'、B'、C'、D'、E'の制御データの検索表示、変更が終了する。複数の操作履歴が自動販売機制御装置A、B、C、D、EのRAMのキーバッファにコピーされると、自動販売機A'、B'、C'、D'、E'の複数の制御データが検索表示され、変更される。自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムと、自己の前記所定の記憶領域に記憶した制御データとに基づいて、自動販売機A'、B'、C'、D'、E'の作動を制御する。

【0056】上記説明から分かるように、自動販売機の操作要員は、自動販売機制御装置A、B、C、D、Eで同一の制御データの確認、変更作業を行う場合に、各自動販売機制御装置毎に操作手段を複雑に手動操作する必要は無い。従って、本発明に係る自動販売機制御装置においては、制御データを確認、変更する際の自動販売機の操作要員の負荷が従来に比べて少ない。

【0057】本実施例に係る自動販売機制御装置の操作履歴読込作動の第3の態様を説明する。自動販売機の操作要員が自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作すると、自動販売機制御装置A、B、C、D、EのCPUは、自身の所定の記憶領域に記憶した従前の制御データを自動販売機制御装置A、B、C、D、EのRAM内の所定の記憶領域にコピーして一時的に退避させる。自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに従い、自動販売機制御装置AのRAM13の所定の記憶領域に記憶された自動販売機制御装置Aの操作部3の操作履歴を、或いはパソコン5のRAMに記憶された自動販売機制御装置Aの操作部3の操作履歴を、或いは自動販売機制御装置B

のRAMに記憶された自動販売機制御装置Aの操作部3の操作履歴を、或いは自動販売機制御装置Aに装着した携帯メモリ2に記憶された自動販売機制御装置Aの操作部3の操作履歴を、或いはパソコン5装着した携帯メモリ6に記憶された自動販売機制御装置Aの操作部3の操作履歴を、或いは自動販売機制御装置Bに装着した携帯メモリ7に記憶された自動販売機制御装置Aの操作部3の操作履歴を、専用回線又は公衆回線を介して、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーする。

【0058】自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに従い、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーした操作部3の操作履歴を構成する、操作部3の入力キーの個々の操作履歴を、逐次、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファにコピーする。

【0059】自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに従い、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに逐次コピーした操作部3の入力キーの個々の操作履歴に基づいて、自動販売機制御装置A、B、C、D、EのCPU内の所定の記憶領域に記憶した自動販売機A'、B'、C'、D'、E'の制御データを検索して、自動販売機制御装置A、B、C、D、Eの表示部に表示し、或いは自動販売機制御装置A、B、C、D、EのCPU内の所定の記憶領域に記憶した自動販売機A'、B'、C'、D'、E'の制御データを変更し、且つ自動販売機制御装置A、B、C、D、Eの表示部に表示する。「開始」キーの操作で始まった操作部3の操作履歴が「終了」キーの操作で終了すると、自動販売機制御装置A、B、C、D、EのCPUによる自動販売機A'、B'、C'、D'、E'の制御データの検索表示、変更が終了する。複数の操作履歴が自動販売機制御装置A、B、C、D、EのRAMのキーバッファにコピーされると、自動販売機A'、B'、C'、D'、E'の複数の制御データが検索表示され、変更される。自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムと、自己の前記所定の記憶領域に記憶した制御データとに基づいて、自動販売機A'、B'、C'、D'、E'の作動を制御する。

【0060】上記説明から分かるように、自動販売機の操作要員は、自動販売機制御装置A、B、C、D、Eで同一の制御データの確認、変更作業を行う場合に、各自

動販売機制御装置毎に操作手段を複雑に手動操作する必要は無い。従って、本発明に係る自動販売機制御装置においては、制御データを確認、変更する際の自動販売機の操作要員の負荷が従来に比べて少ない。

【0061】本実施例においては、自動販売機制御装置Aの操作部3の操作履歴を、自動販売機制御装置AのRAM13、携帯メモリ2、パソコン5のRAM、携帯メモリ6、自動販売機制御装置BのRAM、携帯メモリ7等の多様な形態のメモリに記憶させることができ、且つ前記多様な形態のメモリから操作履歴を記憶させるメモリを選択することができるので、操作履歴を記憶させる際の自由度が大きく、自動販売機制御装置の使用性が高い。

【0062】本実施例においては、自動販売機制御装置AのRAM13、携帯メモリ2、パソコン5のRAM、携帯メモリ6、自動販売機制御装置BのRAM、携帯メモリ7等の多様な形態のメモリから、操作履歴読込先のメモリを選択することができるので、操作履歴を読み込む際の自由度が大きく、自動販売機制御装置の使用性が高い。

【0063】携帯メモリ2、6、7には軽量で持ち運びに便利であるという利点がある。専用回線或いは公衆回線を介する操作部3の操作履歴の送信には、携帯メモリのように持ち運ぶ必要が無いという利点がある。専用回線を介する操作部3の操作履歴の送信には、確実に短時間で送信できるという利点がある。公衆回線を介する操作部3の操作履歴の送信には、遠隔地に設置された自動販売機制御装置へも安価に送信できるという利点がある。

【0064】本実施例においては、自動販売機制御装置AのRAM13、携帯メモリ2、パソコン5のRAM、携帯メモリ6、自動販売機制御装置BのRAM、携帯メモリ7は、操作部3の複数の操作履歴を記憶可能なので、操作部3の一つの操作履歴に付き一つのメモリを配設する必要がない。この結果、自動販売機制御装置の製造コストの高騰が抑制される。

【0065】本実施例においては、RAM13内のバッファにコピーされた操作部3の種々の操作履歴の全てが、自動的にRAM13内のキーバッファにコピーされ、当該操作履歴に基づいて、自動販売機A'の制御データが検索表示され、変更される場合には、制御データ確認、変更作業時の自動販売機の操作要員の負荷が略零まで大幅に軽減され、他方、自動販売機の操作要員が操作部3の入力キーを操作して、RAM13内のバッファにコピーされた操作部3の種々の操作履歴の中から選択した特定の操作履歴が、RAM13内のキーバッファにコピーされ、当該操作履歴に基づいて、自動販売機A'の制御データが検索表示され、変更される場合には、制御データ確認、変更作業の自由度が増し、自動販売機制御装置Aの使用性が向上する。

【0066】本実施例においては、自動販売機制御装置A、B、C、D、EのCPUが変更した自動販売機A'、B'、C'、D'、E'の制御データは、自動販売機制御装置A、B、C、D、Eの表示部に表示されるので、自動販売機の操作要員は、変更された制御データの内容を視認することができる。制御データを視認した自動販売機の操作要員は、変更した制御データが不適切である場合には、自動販売機制御装置A、B、C、D、Eの操作部を操作して、制御データを変更することができる。この結果、制御データが不適切に変更される等の不都合な事態の発生が防止される。

【0067】本実施例においては、携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMが記憶する操作部3の操作履歴には、図2に示すように、操作部3の入力キーの操作が行われた時刻が含まれる。携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMに、操作部3の操作履歴を複数記憶させる場合、操作履歴に操作部3の操作が行われた時刻が含まれれば、当該時刻データが操作履歴の識別データとなるので、自動販売機制御装置A、B、C、D、EのCPUが自動販売機A'、B'、C'、D'、E'の制御データの検索、変更を行う際に依拠する操作履歴を、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーした操作部3の種々の操作履歴の中から、前記識別データを頼りに選択して、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファにコピーすることが可能となる。この場合、最も最近に行われた操作部3の操作履歴に基づいて、自動販売機制御装置A、B、C、D、EのCPUが、自動販売機A'、B'、C'、D'、E'の制御データの検索、変更を行うように、自動販売機制御装置A、B、C、D、Eを構成しても良い。携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMに、操作部3の操作履歴が複数記憶されている場合、最も最近に行われた操作部3の操作履歴が一般に現時点で最も好ましいので、最も最近に行われた操作部3の操作履歴に基づいて制御データの検索、変更を行えば、問題が発生する危険性が少ない。

【0068】本実施例においては、自動販売機制御装置Aの操作部3の操作履歴には、図2に示すように、プログラム名、プログラムの作成年度、プログラムのバージョン等の自動販売機A'の制御プログラムの識別データが含まれる。自動販売機制御装置B、C、D、EのCPUは、自動販売機B'、C'、D'、E'の制御プログラムの識別データと自動販売機A'の制御プログラムの識別データとが同一である場合にのみ、自動販売機制御装置B、C、D、EのRAMのバッファにコピーした操作部3の操作履歴を、逐次、自動販売機制御装置B、

C、D、EのRAMのキーバッファにコピーして、自動販売機B'、C'、D'、E'の制御データを検索し、変更する。自動販売機の制御プログラムは、自動販売機の機種によって異なり、且つ適宜改変される。自動販売機制御装置Aの操作部3の操作履歴に基づいて、自動販売機A'の制御プログラムとは異なる制御プログラムで制御される自動販売機B'に組み込まれた自動販売機制御装置BのCPUが、自動販売機B'の制御データを検索し、変更すると、自動販売機制御装置Bひいては自動販売機B'が誤作動を起こす可能性がある。操作部3の操作履歴に、制御プログラム名、制御プログラム作成年度、制御プログラムのバージョン番号等の自動販売機A'の制御プログラムの識別データを含ませておき、自動販売機制御装置BのCPUは、自動販売機B'の制御プログラムの識別データと自動販売機A'の制御プログラムの識別データとが同一の場合にのみ、すなわち自動販売機B'の制御プログラムと自動販売機A'の制御プログラムとが同一の場合にのみ、自動販売機制御装置BのRAMのバッファにコピーした操作部3の操作履歴を、逐次、自動販売機制御装置BのRAMのキーバッファにコピーして、自動販売機B'の制御データを検索し、変更するように構成すれば、自動販売機制御装置Bひいては自動販売機B'が誤作動を起こす可能性がなくなる。

【0069】本実施例においては、自動販売機制御装置Aの操作部3の操作履歴には、図2に示すように、自動販売機A'の機器設定データが含まれる。自動販売機制御装置B、C、D、EのCPUは、自動販売機B'、C'、D'、E'の機器設定データと自動販売機A'の機器設定データとが同一である場合にのみ、自動販売機制御装置B、C、D、EのRAMのバッファにコピーした操作部3の操作履歴を、逐次、自動販売機制御装置B、C、D、EのRAMのキーバッファにコピーして、自動販売機B'、C'、D'、E'の制御データを検索し、変更する。自動販売機A'と自動販売機B'の制御プログラムの識別データが同一であっても、すなわち自動販売機A'と自動販売機B'の制御プログラムが同一であっても、自動販売機A'と自動販売機B'とでは、稼働中の商品収納コラム数、稼働中の商品選択ボタン数等の機器設定条件が異なる場合がある。かかる場合、自動販売機制御装置Aの操作部3の操作履歴に基づいて、自動販売機制御装置BのCPUが、自動販売機B'の制御データを検索し、変更すると、自動販売機制御装置Bひいては自動販売機B'が誤作動を起こす可能性がある。自動販売機制御装置Aの操作部3の操作履歴に、稼働中の商品収納コラム数、稼働中の商品選択ボタン数等の自動販売機A'の機器設定データを含ませておき、自動販売機制御装置BのCPUは、自動販売機B'の機器設定データと自動販売機A'の機器設定データとが同一の場合にのみ、自動販売機制御装置BのRAMのバッ

ァにコピーした操作部 3 の操作履歴を、逐次、自動販売機制御装置 B の RAM のキーバッファにコピーして、自動販売機 B' の制御データを検索し、変更するように構成すれば、自動販売機制御装置 B については自動販売機 B' が誤作動を起こす可能性がなくなる。

【0070】上述の説明から分かるように、本実施例においては、自動販売機制御装置 B、C、D、E の CPU は、自動販売機 B'、C'、D'、E' の制御プログラムの識別データと自動販売機 A' の制御プログラムの識別データとが同一であり、且つ自動販売機 B'、C'、D'、E' の機器設定データと自動販売機 A' の機器設定データとが同一の場合にのみ、自動販売機制御装置 B、C、D、E の RAM のバッファにコピーした操作部 3 の操作履歴を、逐次、自動販売機制御装置 B、C、D、E の RAM のキーバッファにコピーして、自動販売機 B'、C'、D'、E' の制御データを検索し、変更するので、自動販売機制御装置 B については自動販売機 B' が誤作動を起こす可能性は無い。

【0071】本実施例において、操作部 3 の入力キーを操作して、操作部 3 の操作が行われた時刻、自動販売機 A' の制御プログラムの識別データ、自動販売機 A' の機器設定データ中の任意の一つ又は複数を選択して、携帯メモリ 2、6、7、自動販売機制御装置 A の RAM 13、パソコン 5 の RAM、自動販売機制御装置 B の RAM に記憶させるように、自動販売機制御装置 A を構成しても良い。この場合には、自動販売機制御装置 A、B、C、D、E は、自動販売機制御装置 A、B、C、D、E の RAM のバッファにコピーした操作部 3 の操作履歴に操作部 3 の操作が行われた時刻が含まれる場合には、当該時刻を頼りに選択された操作履歴を、或いは最も最近に行われた操作履歴を、自動販売機制御装置 A、B、C、D、E の RAM のキーバッファにコピーして、自動販売機 A'、B'、C'、D'、E' の制御データを検索し、変更するように、構成される。また自動販売機制御装置 B、C、D、E は、自動販売機制御装置 B、C、D、E の RAM のバッファにコピーした操作部 3 の操作履歴に自動販売機 A' の制御プログラムの識別データが含まれる場合には、自動販売機 A' の制御プログラムの識別データと自動販売機 B'、C'、D'、E' の制御プログラムの識別データとが同一である場合にのみ、自動販売機制御装置 B、C、D、E の RAM のバッファにコピーした操作部 3 の操作履歴を自動販売機制御装置 B、C、D、E の RAM のキーバッファにコピーして、自動販売機 B'、C'、D'、E' の制御データを検索し、変更するように構成される。また自動販売機制御装置 B、C、D、E は、自動販売機制御装置 B、C、D、E の RAM のバッファにコピーした操作部 3 の操作履歴に自動販売機 A' の機器設定データが含まれる場合には、自動販売機 A' の機器設定データと自動販売機 B'、C'、D'、E' の機器設定データとが同一であ

る場合にのみ、自動販売機制御装置 B、C、D、E の RAM のバッファにコピーした操作部 3 の操作履歴を自動販売機制御装置 B、C、D、E の RAM のキーバッファにコピーして、自動販売機 B'、C'、D'、E' の制御データを検索し、変更するように構成される。

【0072】自動販売機 A'、B'、C'、D'、E' の制御プログラム、機器設定条件が全て同一の場合には、自動販売機 A、B、C、D、E の CPU が自動販売機 A'、B'、C'、D'、E' の制御データの検索、変更を行う際に依拠する操作履歴を、操作部 3 の操作が行われた時刻に基づいて選択すれば良い。自動販売機 A'、B'、C'、D'、E' の制御プログラムが全て同一の場合には、自動販売機 B、C、D、E の CPU が自動販売機 B'、C'、D'、E' の制御データの検索、変更を行う際に依拠する操作履歴を、操作部 3 の操作が行われた時刻及び／又は自動販売機 A' の機器設定データと自動販売機 B'、C'、D'、E' の機器設定データとの比較に基づいて選択すれば良い。自動販売機 A'、B'、C'、D'、E' の機器設定データが全て同一の場合には、自動販売機 B、C、D、E の CPU が自動販売機 B'、C'、D'、E' の制御データの検索、変更を行う際に依拠する操作履歴を、操作部 3 の操作が行われた時刻及び／又は自動販売機 A' の制御プログラムの識別データと自動販売機 B'、C'、D'、E' の制御プログラムの識別データとの比較に基づいて選択すれば良い。従って、対象となる複数の自動販売機の状況に応じて、操作手段の操作が行われた時刻、自動販売機の制御プログラムの識別データ、自動販売機の機器設定データ中の任意の一つ又は複数を選択して操作履歴記憶手段に記憶させるように構成することは有用である。

【0073】本実施例において、自動販売機 A' の制御プログラムに従って自動的に、操作部 3 の操作が行われた時刻、自動販売機 A' の制御プログラムの識別データ、自動販売機 A' の機器設定データ中の任意の一つ又は複数を選択して、携帯メモリ 2、6、7、自動販売機制御装置 A の RAM 13、パソコン 5 の RAM、自動販売機制御装置 B の RAM に記憶させるように、自動販売機制御装置 A を構成しても良い。

【0074】本実施例において、自動販売機制御装置 A、B、C、D、E の RAM のバッファにコピーした操作部 3 の種々の操作履歴中の、自動販売機制御装置 A、B、C、D、E の CPU が自動販売機 A'、B'、C'、D'、E' の制御データを検索し、変更する際に依拠可能な操作履歴の全てを、自動的に自動販売機制御装置 A、B、C、D、E の RAM のキーバッファにコピーし、当該履歴に基づいて、自動販売機制御装置 A、B、C、D、E の CPU が自動販売機 A'、B'、C'、D'、E' の制御データを検索し、変更するように、自動販売機制御装置 A、B、C、D、E を構成して

も良い。操作部3の操作が行われた時刻、自動販売機A'の制御プログラムの識別データと自動販売機B'、C'、D'、E'の制御プログラムの識別データとの比較、自動販売機A'の機器設定データと自動販売機B'、C'、D'、E'の機器設定データとの比較等に照らして、自動販売機制御装置A、B、C、D、EのRAMのバッファにコピーした操作部3の種々の操作履歴中に、自動販売機制御装置A、B、C、D、EのCPUが自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更する際に依拠可能な操作履歴が複数ある場合に、依拠可能な操作履歴の全てを、自動的に自動販売機制御装置A、B、C、D、EのRAMのキーバッファにコピーし、当該履歴に基づいて、自動販売機制御装置A、B、C、D、EのCPUが自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更すれば、制御データの確認、変更作業時の、操作要員の負荷は略零まで大幅に軽減される。

【0075】本実施例において、自動販売機制御装置A、B、C、D、EのRAMのバッファにコピーした操作部3の種々の操作履歴中の、自動販売機制御装置A、B、C、D、EのCPUが自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更する際に依拠可能な操作履歴から、操作要員が自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、所望の操作履歴を選択し、当該操作履歴のみを、自動的に自動販売機制御装置A、B、C、D、EのRAMのキーバッファにコピーし、当該履歴に基づいて、自動販売機制御装置A、B、C、D、EのCPUが自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更するように、自動販売機制御装置A、B、C、D、Eを構成しても良い。操作部3の操作が行われた時刻、自動販売機A'の制御プログラムの識別データと自動販売機B'、C'、D'、E'の制御プログラムの識別データとの比較、自動販売機A'の機器設定データと自動販売機B'、C'、D'、E'の機器設定データとの比較等に照らして、自動販売機制御装置A、B、C、D、EのRAMのバッファにコピーした操作部3の種々の操作履歴中に、自動販売機制御装置A、B、C、D、EのCPUが自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更する際に依拠可能な操作履歴が複数ある場合でも、当該複数の操作履歴中の特定の操作履歴に基づいて自動販売機A'、B'、C'、D'、E'の制御データの確認、変更を行いたい場合がある。係る場合に、操作要員が、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、依拠可能な操作履歴の中から所望の操作履歴を選択できれば便利である。

【0076】本実施例においては、携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMが記憶する操作

部3の操作履歴には、図2に示すように操作部3の操作が行われた時の実際の操作間隔、即ち各操作間の実際の時間間隔が含まれ、或いは実際の操作間隔に関係の無い予め設定された操作間隔が含まれる。操作間隔の設定は、自動販売機制御装置AのCPU11がROM12から読み込んだ自動販売機A'の制御プログラムに従って自動的に行われ、或いは、操作要員が、自動販売機制御装置Aの操作部3の入力キーを操作して行う。

【0077】携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMが記憶する操作部3の操作履歴が、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーされ、当該操作履歴を構成する操作部3の入力キーの個々の操作履歴が、当該操作履歴に含まれる操作部3の実際の操作間隔或いは予め設定した操作間隔に等しい時間間隔で、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに逐次コピーされる。より具体的に説明すると、例えば「アップ」キー操作が自動販売機制御装置A、B、C、D、EのRAM内のキーバッファにコピーされ、操作履歴に含まれる操作部3の実際の操作間隔或いは予め設定した操作間隔に等しい時間間隔を置いて、「ダウン」キー操作が自動販売機制御装置A、B、C、D、EのRAM内のキーバッファにコピーされる。

【0078】自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに逐次コピーされた操作部3の入力キーの個々の操作履歴に基づいて、自動販売機制御装置A、B、C、D、EのCPUが、自動販売機A'、B'、C'、D'、E'の制御データを逐次検索し、変更する。より具体的に説明すると、例えば、「アップ」キー操作に基づいて、従前の110円という価格データが120円に変更され、操作履歴に含まれる操作部3の実際の操作間隔或いは予め設定した操作間隔に等しい時間間隔を置いて、「ダウン」キー操作に基づいて、一旦120円に変更された価格データが110円に再度変更される。或いは「売上高確認」キー操作に基づいて、自動販売機A'、B'、C'、D'、E'の売上高が検索される。

【0079】自動販売機制御装置A、B、C、D、Eの表示部は、逐次検索、変更された自動販売機A'、B'、C'、D'、E'の制御データを逐次表示する。この際、自動販売機制御装置A、B、C、D、Eの表示部は、検索、変更された自動販売機A'、B'、C'、D'、E'の制御データを、操作部3の操作履歴に含まれる操作部3の実際の操作間隔或いは予め設定した操作間隔に等しい時間間隔で、逐次表示する。より具体的に説明すると、「アップ」キー操作に基づいて変更した価格120円を表示し、当該表示を、「アップ」キー操作と「ダウン」キー操作との間の実際の操作間隔或いは予め設定された操作間隔に等しい時間間隔の間維持し、次

いで、「ダウン」キー操作に基づいて変更した価格110円を表示する。操作要員は、表示120円と110円とが所定の時間間隔を隔てて表示されるので、当該所定の時間間隔が長ければ、変更された価格を明確に視認することができるので、価格等の制御データが不適切に変更される等の不都合な事態の発生が防止され、前記時間間隔が短ければ、制御データの確認、変更作業に要する時間が短縮される。

【0080】本実施例において、操作部3の操作履歴に操作間隔が含まれるか否かに係わらず、或いは操作部3の操作履歴に含まれる操作間隔の如何に係わらず、自動販売機制御装置A、B、C、D、EのCPU、表示部が、自動販売機A'、B'、C'、D'、E'の制御データを、予め設定した時間間隔で逐次検索、変更、表示するように構成しても良い。より具体的に説明すると、「アップ」キー操作に基づいて価格を110円から120円に変更して表示し、次いで、予め設定した時間間隔で、「ダウン」キー操作に基づいて価格を120円から110円に変更して表示しても良い。検索、変更、表示の時間間隔は、自動販売機制御装置A、B、C、D、EのCPUが、自動販売機制御装置A、B、C、D、EのROMから読み込んだ自動販売機A'、B'、C'、D'、E'の制御プログラムに基づいて自動的に設定しても良く、或いは自動販売機の操作要員が、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して設定しても良い。自動販売機制御装置A、B、C、D、EのCPU、表示部が、自動販売機A'、B'、C'、D'、E'の制御データを、予め設定した時間間隔で逐次検索、変更、表示すれば、当該時間間隔が長い場合には、操作要員は制御データの内容を明確に視認することができるので、価格等の制御データが不適切に変更される等の不都合な事態の発生が防止され、前記時間間隔が短い場合には、制御データの確認、変更作業に要する時間が短縮される。

【0081】本実施例において、自動販売機制御装置A、B、C、D、EのCPU、表示部が、自動販売機A'、B'、C'、D'、E'の制御データを、操作部3の操作履歴に含まれる操作間隔に等しい時間間隔で検索、変更、表示するか、或いは操作部3の操作履歴に操作間隔が含まれるか否かに係わらず、或いは操作部3の操作履歴に含まれる操作間隔の如何に係わらず、予め設定した時間間隔で検索、変更、表示するかを、自動販売機の操作要員が、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して選択できるように、自動販売機制御装置A、B、C、D、Eを構成しても良い。自動販売機A'、B'、C'、D'、E'の制御データを、操作部3の操作履歴に含まれる操作間隔に等しい時間間隔で検索、変更、表示するか、或いは操作部3の操作履歴に操作間隔が含まれるか否かに係わらず、或いは操作部3の操作履歴に含まれる操作間隔の如何に係

わらず、予め設定した時間間隔で検索、変更、表示するかを選択できれば便利である。

【0082】本実施例においては、自動販売機の操作要員は、携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMが記憶する操作部3の操作履歴を、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、或いはパソコン5の入力キーを操作して、編集することができる。上記構成によれば、現状に適した操作履歴に基づいて、制御データを確認、変更することができる。

【0083】本実施例においては、自動販売機の操作要員は、操作履歴を記憶させるために、自動販売機制御装置Aの操作部3を操作している最中に、操作部3の入力キーを操作して、自動販売機制御装置AのRAMのバッファにコピーした、「開始」キー操作から始まり、「終了」キー操作まで至っていない未完成の操作履歴を消去することができる。操作履歴を記憶させるために、自動販売機制御装置Aの操作部3を操作している最中に、操作要員が操作ミスを犯した場合、自動販売機制御装置AのRAMのバッファにコピーした、未完成の操作履歴を消去することができれば、操作部3の操作をやり直して、正しい操作履歴を、携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMに記憶させることができるので、便利である。

【0084】本実施例においては、自動販売機の操作要員は、自動販売機制御装置A、B、C、D、EのRAM内のバッファにコピーした、携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMが記憶する操作部3の操作履歴を、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに逐次コピーしている最中に、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して前記コピーを中断させ、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに操作履歴を追加入力し、次いで、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して中断したコピーを再開させることができる。自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに逐次コピーされた「アップ」キー操作、「ダウン」キー操作等の個々の操作履歴が不適切である場合、前記コピーを中断させ、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、自動販売機制御装置A、B、C、D、EのRAM内のキーバッファに「アップ」キー操作、「ダウン」キー操作等の操作履歴を追加入力し、不適切な操作履歴を修正した後、前記コピーを再開させることができれば、便利である。

【0085】本実施例において、操作部3の操作履歴

を、自動販売機制御装置A、B、C、D、EのRAM内のバッファから、キーバッファへファに逐次コピーしている時には、当該コピーの中断時にのみ、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して操作履歴をキーバッファへファに入力するのを許容するように、自動販売機制御装置A、B、C、D、Eを構成しても良く、或いは、操作部3の操作履歴を、自動販売機制御装置A、B、C、D、EのRAM内のバッファから、キーバッファへファに逐次コピーしている時に、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを随時操作して操作履歴をキーバッファへファに入力するのを許容するように、自動販売機制御装置A、B、C、D、Eを構成しても良い。前者の場合には、キーバッファへのコピー中に、操作部が誤って操作されて、操作履歴が誤って修正される事態の発生が防止される。他方、検索、変更された制御データが十分に長い時間間隔で表示される場合には、検索、変更された制御データを視認した操作要員が、視認した制御データが不適切な場合に、前記時間間隔中に操作部を操作して操作履歴を修正し、ひいては制御データを修正することが、物理的に十分可能である。従って、操作履歴のキーバッファへのコピー中に、随時操作部を操作して操作履歴をキーバッファへファに入力するのを許容するように、自動販売機制御装置A、B、C、D、Eを構成することは有用である。

【0086】本実施例においては、操作要員は、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、自動販売機制御装置A、B、C、D、EのCPUが変更した制御データを消去し、自動販売機制御装置A、B、C、D、EのRAMの所定の記憶領域に一時的に退避させていた従前の制御データを復旧させることができる。変更後の制御データが不適切である場合、当該制御データを消去し従前の制御データを復旧させることができれば便利である。

【0087】本実施例においては、自動販売機制御装置A、B、C、D、Eは、携帯メモリ2、6、7、自動販売機制御装置AのRAM13、パソコン5のRAM、自動販売機制御装置BのRAMによる、操作部3の操作履歴の記憶開始時、操作履歴の記憶中、操作履歴の記憶終了時に、各メモリーが各作動状態にあることを表示するLEDランプ等の図示しない表示手段を備える。各メモリーの作動状態を把握できれば便利である。

【0088】本実施例においては、自動販売機制御装置A、B、C、D、Eは、それぞれのRAM内のキーバッファへの操作履歴のコピー開始時、コピー中、コピー中断中、コピー再開時、コピー終了時に、キーバッファが各作動状態にあることを表示するLEDランプ等の図示しない表示手段を備える。キーバッファの作動状態を把握できれば便利である。

【0089】本実施例に係る自動販売機制御装置の作動

を図3～5のフローチャートに基づいて説明する。操作履歴記憶作動を図3に基づいて説明する。自動販売機の操作要員が、自動販売機制御装置Aの操作部3のリモコン装置の「開始」キーを押すと、操作履歴入力作動が開始される(S1)。操作要員が操作部3のリモコン装置の入力キー、自動販売機A'の商品選択部等を順次押して操作部3を操作すると、当該操作と前回の操作からの実際の時間間隔或いは実際の時間間隔に関係の無い予め設定された時間間隔とが自動販売機制御装置AのRAM13内のキーバッファに逐次入力される。自動販売機制御装置AのRAM13内のキーバッファに逐次入力された操作部3の操作履歴は、自動販売機制御装置AのRAM13内のバッファに逐次コピーされる(S2、S3)。操作要員が操作部3の操作ミスをした場合、操作要員が操作部3のリモコン装置の「キャンセル」キーを押すと、自動販売機制御装置AのRAM13内のバッファに逐次コピーされた、操作部3の未完成の操作履歴が消去され、操作履歴記憶作動は終了する(S4)。操作要員は、操作部3の操作を繰り返し、最後に操作部3のリモコン装置の「終了」キーを押して、操作履歴の入力を終える(S5)。

【0090】操作要員が操作部3の入力キーを操作して操作履歴を記憶する記憶媒体を指定し、或いは自動販売機A'の制御プログラムに従って自動的に操作履歴を記憶する記憶媒体が指定される(S6)。指定された記憶媒体が自動販売機制御装置Aの制御部1に直接或いは回線を介して間接的に接続されているか否か判定される(S7)。前記記憶媒体が接続されていない場合には、自動販売機制御装置AのRAM13内のバッファにコピーされた、操作部3の操作履歴が消去され、操作履歴記憶作動は終了する。

【0091】前記記憶媒体が接続されている場合には、記憶内容の指定が行われる(S8)。すなわち、操作要員が操作部3の入力キーを操作することにより、或いは自動販売機A'の制御プログラムに従って自動的に、自動販売機制御装置AのRAM13内のバッファにコピーした操作部3の操作履歴の全てを前記記憶媒体に記憶させるのか、或いは操作履歴中の「操作時刻」、「制御プログラム識別データ」、「機器設定データ」、「操作間隔」のうちの1又は複数のデータを除いた操作履歴を前記記憶媒体に記憶させるのか指定される。記憶内容指定作動により指定された内容の操作履歴が、記憶媒体指定作動により指定された記憶媒体に記憶され(S9)、操作履歴記憶作動が終了する(S10)。

【0092】複数の操作履歴を記憶媒体に記憶させる場合には、上記S1～S10の作動が繰り返される。

【0093】操作履歴読込作動を図4、5に基づいて説明する。操作要員が、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して操作履歴の読込を指示すると、操作履歴読込作動が開始される(S1)。

操作要員が自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して読込先の記憶媒体を指定し、或いは自動販売機A'、B'、C'、D'、E'の制御プログラムに従って自動的に読込先の記憶媒体が指定される(S2)。指定された読込先記憶媒体が自動販売機制御装置A、B、C、D、Eの制御部に直接に或いは回線を介して間接的に接続されているか否か判定される

(S3)。読込先記憶媒体が接続されていない場合には、操作履歴読込作動は終了する。

【0094】読込先記憶媒体が接続されている場合には、自動販売機制御装置A、B、C、D、EのCPUの所定の記憶領域に記憶された従前の制御データが、自動販売機制御装置A、B、C、D、EのRAMにコピーされて一時的に退避させられ、読込先記憶媒体に記憶された操作部3の全操作履歴が、自動販売機制御装置A、B、C、D、EのRAMのバッファにコピーされる(S4)。操作要員が自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、或いは自動販売機A'、B'、C'、D'、E'の制御プログラムに基づいて自動的に、読込先記憶媒体に記憶された操作部3の操作履歴を自動読込するのか手動読込するのか指定する(S5)。

【0095】手動読込する場合には、自動販売機制御装置A、B、C、D、EのRAMのバッファにコピーされた各操作履歴の「制御プログラム識別データ」、「機器設定データ」と、自動販売機A'、B'、C'、D'、E'の制御プログラム識別データ、自動販売機A'、B'、C'、D'、E'の機器設定データとが比較され、選択可能な操作履歴が在るか否か判定される(S6)。選択可能な操作履歴が無い場合には、操作履歴読込作動は終了する。選択可能な操作履歴が在る場合には、操作要員は、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、1又は複数の所望の操作履歴を選択する(S7)。操作要員は、操作履歴の読込を中止したい場合には、操作部の入力キーを操作して、操作履歴の読込作動を中止させる(S8)。操作要員は、所望の操作履歴の選択が終了すると、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、所望の操作履歴の読込を開始させる(S9)。

【0096】自動読込する場合には、読み込まれた各操作履歴の「制御プログラム識別データ」、「機器設定データ」と、自動販売機A'、B'、C'、D'、E'の制御プログラム識別データ、自動販売機A'、B'、C'、D'、E'の機器設定データとが比較され、選択可能な操作履歴が在るか否か判定される(S10)。選択可能な操作履歴が無い場合には、操作履歴読込作動は終了する。選択可能な操作履歴が在る場合には、自動販売機A'、B'、C'、D'、E'の制御プログラムに基づいて、読み込まれる操作履歴が自動的に選択される(S11)。選択方法としては、最も最近の操作履歴を

選択する、選択可能な全ての操作履歴を選択する等が挙げられる。

【0097】手動による又は自動による、読み込み操作履歴の選択が終了すると、操作要員が操作部の入力キーを操作して、或いは自動販売機A'、B'、C'、D'、E'の制御プログラムに基づいて自動的に、操作履歴の読込方法を指定する。すなわち、操作履歴に含まれる操作間隔通りの時間間隔で、各操作を自動販売機制御装置A、B、C、D、EのRAMのバッファからキーバッファにコピーし、自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更し、自動販売機制御装置A、B、C、D、Eの表示部に表示するのか、或いは操作履歴に含まれる操作間隔に関わりなく予め設定された時間間隔で、各操作を自動販売機制御装置A、B、C、D、EのRAMのバッファからキーバッファにコピーし、自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更し、自動販売機制御装置A、B、C、D、Eの表示部に表示するのか、指定する(S12)。

【0098】手動により或いは自動的に選択された操作履歴が、手動により或いは自動的に設定された読込方法で、自動販売機制御装置A、B、C、D、EのRAMのバッファからキーバッファに逐次コピーされる(S13)。自動販売機制御装置A、B、C、D、EのCPUは、自動販売機制御装置A、B、C、D、EのRAMのキーバッファに逐次コピーされた操作履歴に基づいて、自動販売機A'、B'、C'、D'、E'の制御データを検索し、変更し、自動販売機制御装置A、B、C、D、Eの表示部に表示する(S13)。

【0099】操作要員は、表示部に表示された変更後の制御データを修正したい場合には、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して、自動販売機制御装置A、B、C、D、EのRAMのキーバッファへの操作履歴のコピーを中断させ、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して制御データを修正し、次いで自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作して中断したキーバッファへの操作履歴のコピーを再開させることができる(S14、S15)。操作要員は、キーバッファへの操作履歴のコピー中に、自動販売機制御装置A、B、C、D、Eの操作部の入力キーを操作してキーバッファへの操作履歴のコピーを中止させ、操作履歴読込作動を終了させることができる(S16、S17、S23)。「中断」、「制御データ修正のための入力キー操作」、「再開」、「中止」は、修正したい制御データが表示部に表示されている間に行う(S18)。操作履歴の「終了」キー操作がキーバッファにコピーされると、一つの操作履歴の読込作動が終了する(S19)。

【0100】確認、変更した自動販売機A'、B'、C'、D'、E'の制御データが所望の制御データでは

ない場合、操作要員は、操作履歴読込作動が終了した後、自動販売機制御装置 A、B、C、D、E の操作部の入力キーを「Undo」操作して、確認、変更した制御データを消去し、自動販売機制御装置 A、B、C、D、E の RAM に一時的に退避させていた従前の制御データを復旧させる (S20、S21)。選択された全ての操作履歴の読込作動が終了すると、操作履歴読込作動は終了する (S23)。

【0101】上記実施例においては、メモリに複数の操作履歴が記憶されている場合に、全操作履歴の「開始」から「終了」に至る一連の履歴の全てを、自動販売機制御装置の RAM 内のバッファにコピーし、次いで、操作履歴に含まれる自動販売機制御プログラム識別データ、自動販売機機器設定データ、操作時刻に基づいて、制御データの確認、変更の際に依拠可能な操作履歴を選択し、選択した操作履歴のみを自動販売機制御装置の RAM 内のキーバッファに逐次コピーしたが、メモリに複数の操作履歴が記憶されている場合に、全操作履歴の自動販売機制御プログラム識別データ、自動販売機機器設定データ、操作時刻のみを自動販売機制御装置の RAM 内のバッファにコピーし、次いで、操作履歴に含まれる自動販売機制御プログラム識別データ、自動販売機機器設定データ、操作時刻等に基づいて、制御データの確認、変更の際に依拠可能な操作履歴を選択し、選択した操作履歴のみを自動販売機制御装置の RAM 内のキーバッファに逐次コピーしても良い。操作履歴読込に要する時間が短縮される。上記実施例においては、操作履歴を記憶する際に、「開始」キー操作、「終了」キー操作を記憶したが、図 2 から分かるように、操作履歴の「開始」、「終了」は、前後の操作履歴から判断可能なので、記憶内容から省略しても良い。

【0102】

【発明の効果】以上説明したごとく、本発明に係る自動販売機制御装置においては、予め操作手段を複雑に操作して、本制御装置が組み込まれた自動販売機の種々の制御データを確認、変更するための種々の操作履歴を操作履歴記憶手段に記憶させておけば、その後は、状況に応じて操作履歴記憶手段から所望の操作履歴を操作履歴読

込手段に読み込ませれば、読み込まれた操作履歴に基づいて、確認変更手段が、制御データを検索表示し、変更するので、従来のように制御データの確認、変更作業の度毎に操作手段を複雑に操作する必要は無い。また、例えば自動販売機制御装置 A の操作履歴記憶手段が記憶した自動販売機制御装置 A の操作手段の操作履歴を、自動販売機制御装置 B、C、D、E の操作履歴読込手段に読み込ませれば、読み込まれた操作履歴に基づいて、自動販売機制御装置 B、C、D、E の確認変更手段が、自動販売機制御装置 B、C、D、E が組み込まれた自動販売機の制御データを検索表示し、変更するので、自動販売機制御装置 B、C、D、E で自動販売機制御装置 A と同一の制御データの確認、変更作業を行う場合に、各自動販売機制御装置毎に操作手段を複雑に手動操作する必要は無い。従って、本発明に係る自動販売機制御装置においては、制御データを確認、変更する際の、自動販売機の操作要員の負荷が従来に比べて少ない。

【図面の簡単な説明】

【図 1】本発明の実施例に係る自動販売機制御装置の機器構成図である。

【図 2】本発明の実施例に係る自動販売機制御装置の操作履歴記憶手段に記憶される操作履歴のデータ構造例を示す図である。

【図 3】本発明の実施例に係る自動販売機制御装置の作動のフローチャートである。

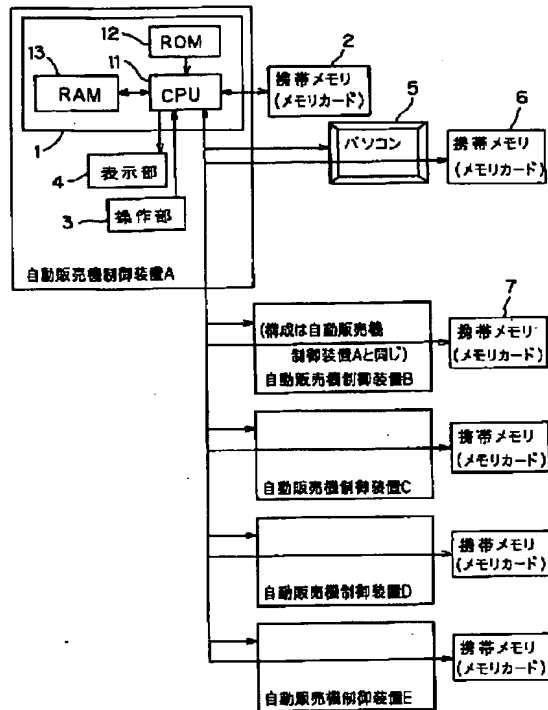
【図 4】本発明の実施例に係る自動販売機制御装置の作動のフローチャートである。

【図 5】本発明の実施例に係る自動販売機制御装置の作動のフローチャートである。

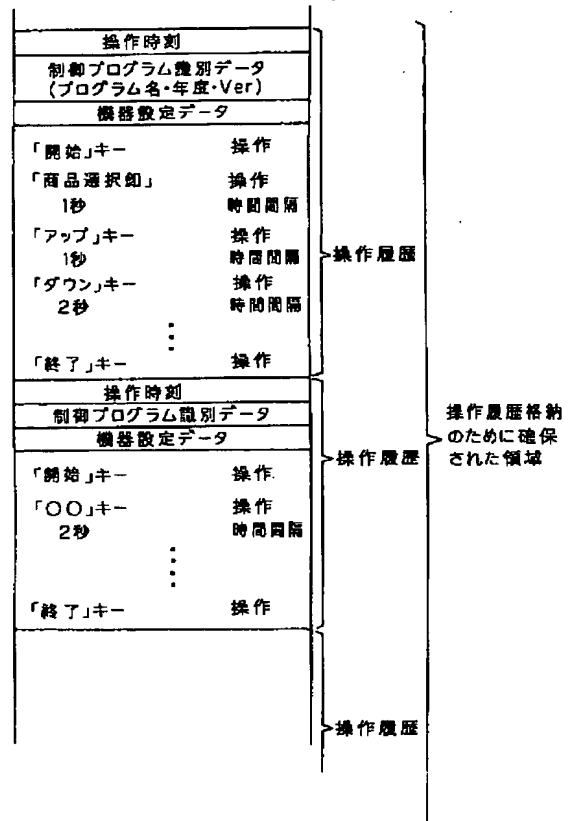
【符号の説明】

- 1 制御部
- 2、6、7 携帯メモリ
- 3 操作部
- 4 表示部
- 5 パソコン
- 11 CPU
- 12 ROM
- 13 RAM

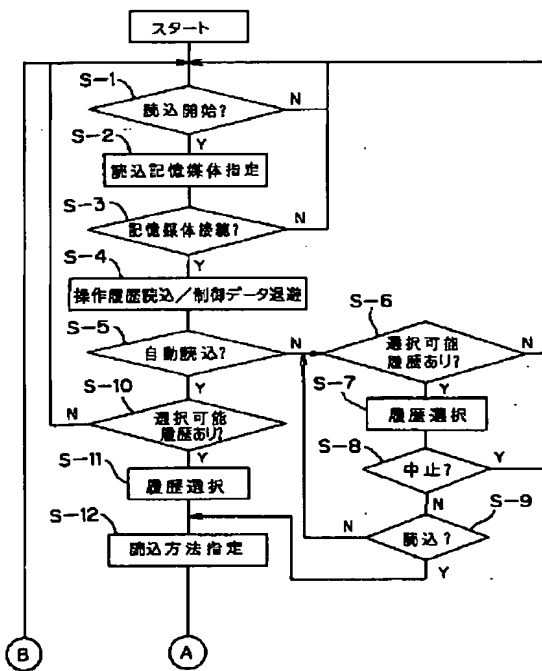
【図1】



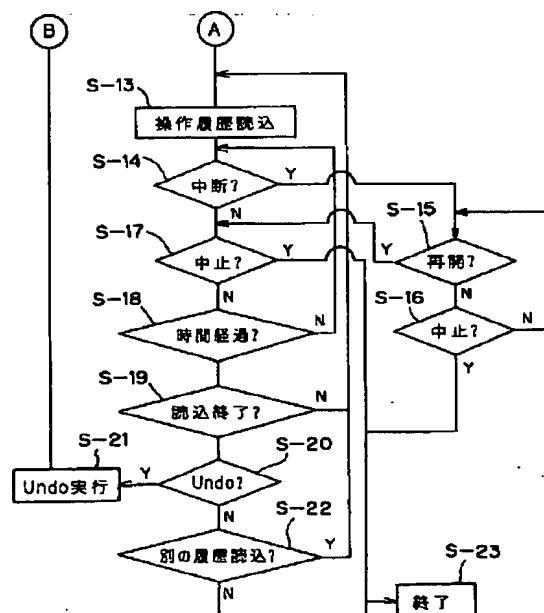
【図2】



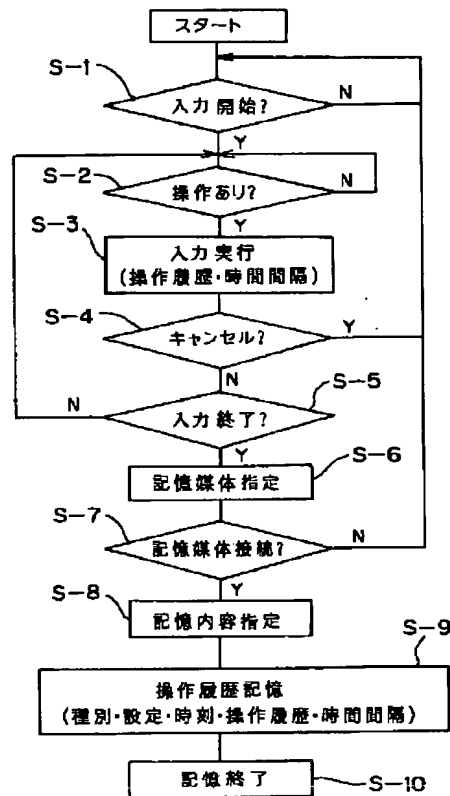
【図4】



【図5】



【図3】



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(72)発明者 石崎 功
群馬県伊勢崎市寿町20番地 サンデン株式
会社内
(72)発明者 松本 尚人
群馬県伊勢崎市寿町20番地 サンデン株式
会社内

(72)発明者 中村 禎
群馬県伊勢崎市寿町20番地 サンデン株式
会社内
(72)発明者 木村 理
群馬県伊勢崎市寿町20番地 サンデン株式
会社内

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(71)Applicant : SANDEN CORP

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(72)Inventor : KOKUBU TETSUYA

SONE YUJI

ISHIZAKI ISAO

MATSUMOTO NAOHITO

NAKAMURA TEI

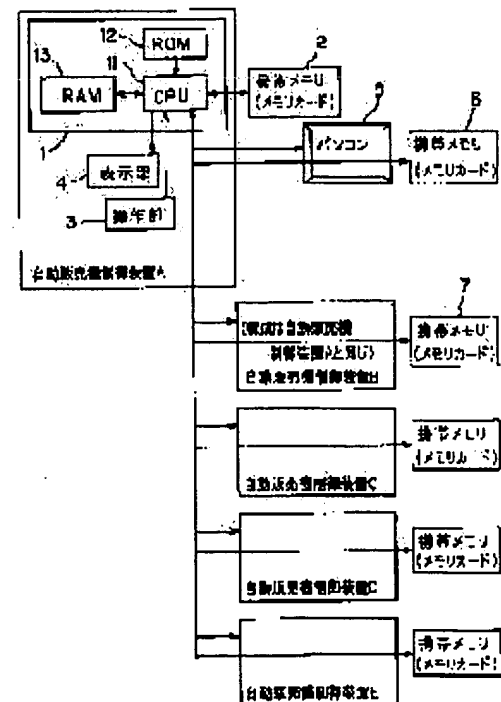
KIMURA OSAMU

(54) CONTROLLER OF VENDING MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a controller of a vending machine which can reduce the load of an operator of the vending machine as compared with the former machine when the control data are confirmed and changed by retrieving and displaying the data to be confirmed according to a read operation history and then changing the data to be changed.

SOLUTION: The operation histories of input keys of an operation part 3 are inputted in sequence to a key buffer, i.e., a prescribed temporary storage area that is secured in a RAM 13. A CPU 11 retrieves the control data on a vending machine out of its prescribed storage area and shows them at a display part 4 according to a control program of the vending machine that is read out of a ROM 12 and on the basis of the operation histories of input keys of the part 3 which are successively inputted to the key buffer. Otherwise, the control data on the vending machine



stored in a prescribed area of the CPU 11 are changed and shown at the part 4. Thus, a conventional complicated operation of an operation means is not required even at every time when the control data are confirmed and changed.

* NOTICES *

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CLAIMS

[Claim(s)]

[Claim 1]A vending machine controller comprising:

A control means which performs operation for checking and changing control data of a vending machine.

An operation history memory measure which memorizes an operation history of a control means.

An operation history reading means which reads an operation history from an operation history memory measure.

A check alteration means which is based on a read operation history, analytical-table-shows and changes control data.

[Claim 2]The vending machine controller according to claim 1, wherein an operation history memory measure has the portable memory with which a vending machine controller was equipped removable.

[Claim 3]The vending machine controller according to claim 1 or 2, wherein an operation history memory measure has a vending machine controller internal memory.

[Claim 4]A vending machine controller given in any 1 paragraph of claims 1 thru/or 3, wherein an operation history memory measure has the portable memory with which other vending machine controllers connected to a vending machine controller via a circuit were equipped removable.

[Claim 5]A vending machine controller given in any 1 paragraph of claims 1 thru/or 4, wherein an operation history memory measure has other vending machine controller internal memories connected to a vending machine controller via a circuit.

[Claim 6]A vending machine controller given in any 1 paragraph of claims 1 thru/or 5, wherein an operation history memory measure has the portable memory with which a personal

computer connected to a vending machine controller via a circuit was equipped removable.

[Claim 7]A vending machine controller given in any 1 paragraph of claims 1 thru/or 6, wherein an operation history memory measure has the personal computer internal memory connected to a vending machine controller via a circuit.

[Claim 8]A portable memory by which a vending machine controller was equipped with an operation history memory measure removable, A vending machine controller internal memory, a portable memory with which other vending machine controllers connected to a vending machine controller via a circuit were equipped removable, Other vending machine controller internal memories connected to a vending machine controller via a circuit, A portable memory with which a personal computer connected to a vending machine controller via a circuit was equipped removable, The vending machine controller according to claim 1 provided with the 1st memory selecting means which chooses a memory of a request which has two or more memories concerning arbitrary combination in a personal computer internal memory connected to a vending machine controller via a circuit, and should memorize an operation history from further two or more memories.

[Claim 9]A portable memory by which a vending machine controller was equipped with an operation history memory measure removable, A vending machine controller internal memory, a portable memory with which other vending machine controllers connected to a vending machine controller via a circuit were equipped removable, Other vending machine controller internal memories connected to a vending machine controller via a circuit, A portable memory with which a personal computer connected to a vending machine controller via a circuit was equipped removable, The vending machine controller according to claim 1 provided with the 2nd memory selecting means which has two or more memories concerning arbitrary combination in a personal computer internal memory connected to a vending machine controller via a circuit, and chooses a memory of an operation history reading place from further two or more memories.

[Claim 10]A vending machine controller given in any 1 paragraph of claims 4 thru/or 9, wherein a circuit is a dedicated line.

[Claim 11]A vending machine controller given in any 1 paragraph of claims 4 thru/or 9, wherein a circuit is a public line.

[Claim 12]A vending machine controller given in any 1 paragraph of claims 1 thru/or 11, wherein the operation history memory measure can memorize two or more operation histories.

[Claim 13]The vending machine controller according to claim 12, wherein it performs a search display of control data and a check alteration means makes a change automatically based on all the operation histories which an operation history reading means read.

[Claim 14]The vending machine controller according to claim 12 provided with the 1st

operation history selecting means which chooses an operation history which is based when a search display of control data is performed and a check alteration means makes a change from operation histories which an operation history reading means read.

[Claim 15]The vending machine controller according to claim 12, wherein time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes.

[Claim 16]The vending machine controller according to claim 12, wherein time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes, it performs a search display of control data and a check alteration means makes a change based on an operation history performed most these days.

[Claim 17]It is contained in an operation history which an operation history memory measure memorizes by identification data of a control program of a vending machine, and a check alteration means, The vending machine controller according to claim 12 or 15 performing a search display of control data and making a change based on an operation history in which the same identification data as identification data of a control program of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained.

[Claim 18]It is contained in an operation history which an operation history memory measure memorizes by apparatus setting data of a vending machine, and a check alteration means, A vending machine controller given in any 1 paragraph of claims 12, 15, and 17 performing a search display of control data and making a change based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained.

[Claim 19]The same identification data as identification data of a control program of a vending machine in which a vending machine controller was incorporated characterized by comprising the following is contained, And the vending machine controller according to claim 12 performing a search display of control data and making a change based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained.

In an operation history which an operation history memory measure memorizes, it is identification data of a control program of a vending machine.

Apparatus setting data of a vending machine is contained and a check alteration means is the check alteration means concerned.

[Claim 20]Time when operation of a control means was performed, identification data of a

control program of a vending machine, Have a data selection means which chooses arbitrary one or more in apparatus setting data of a vending machine, and an operation history memory measure is made to memorize, and a check alteration means, When time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes, Based on an operation history chosen as a reliance, or an operation history memorized most these days, the time concerned A search display of control data, When identification data of a control program of a vending machine is contained in an operation history which is changed and an operation history memory measure memorizes, The same identification data as identification data of a control program of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated based on an operation history included A search display of control data, When apparatus setting data of a vending machine is contained in an operation history which is changed and an operation history memory measure memorizes, The vending machine controller according to claim 12 performing a search display of control data and making a change based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained.

[Claim 21]A vending machine controller given in any 1 paragraph of claims 15, 17, 18, 19, and 20, wherein it performs a search display of control data and a check alteration means makes a change automatically based on all the operation histories that can be based.

[Claim 22]A vending machine controller given in any 1 paragraph of claims 15, 17, 18, 19, and 20 provided with the 2nd operation history selecting means which chooses a desired operation history out of an operation history on which a check alteration means can be based.

[Claim 23]A vending machine controller given in any 1 paragraph of claims 1 thru/or 22 provided with a control data displaying means which displays control data which a check alteration means changed.

[Claim 24]It is included in an operation history which an operation history memory measure memorizes by actual operation interval of a control means, and a check alteration means and a control data displaying means, The vending machine controller according to claim 23 characterized by performing a search display of control data, change, and a display with a time interval equal to an operation interval included in an operation history which an operation history reading means read.

[Claim 25]It is included in an operation history which an operation history memory measure memorizes by operation interval to which a control means was set beforehand, and a check alteration means and a control data displaying means, The vending machine controller according to claim 23 characterized by performing a search display of control data, change, and a display with a time interval equal to an operation interval included in an operation history

which an operation history reading means read.

[Claim 26]The vending machine controller according to claim 23, wherein a check alteration means and a control data displaying means perform a search display of control data, change, and a display with a time interval set up beforehand.

[Claim 27]It is included in an operation history which an operation history memory measure memorizes by a actual operation interval or an operation interval set up beforehand of a control means, and a check alteration means and a control data displaying means, With a time interval equal to an operation interval included in an operation history which an operation history reading means read, or a time interval set up beforehand. Perform a search display of control data, change, and a display, and with a time interval still more nearly equal to an operation interval included in an operation history A search display of control data, The vending machine controller according to claim 23 provided with a time interval selecting means which chooses whether change and a display are performed or a search display of control data, change, and a display are performed with a time interval set up beforehand.

[Claim 28]The vending machine controller according to claim 25 or 27 provided with an operation interval setting-out means to set up an operation interval beforehand.

[Claim 29]The vending machine controller according to claim 26 or 27, wherein a check alteration means and a control data displaying means are provided with a time interval setting-out means to set up a time interval which performs a search display of control data, change, and a display.

[Claim 30]A vending machine controller given in any 1 paragraph of claims 1 thru/or 29 provided with an operation history editing means which edits an operation history which an operation history memory measure memorized.

[Claim 31]A vending machine controller given in any 1 paragraph of claims 1 thru/or 30 having an operation history erasing means which eliminates an operation history which an operation history memory measure is memorizing during operation of a control means.

[Claim 32]A vending machine controller given in any 1 paragraph of claims 1 thru/or 31 characterized by comprising the following.

A reading discontinuation means to interrupt reading of an operation history during an operation of an operation history reading means.

A resumption means of reading to make reading of an interrupted operation history resume.

[Claim 33]The vending machine controller according to claim 32 permitting operation of a control means for checking and changing control data during an operation of an operation history reading means only at the time of reading discontinuation.

[Claim 34]The vending machine controller according to claim 32 permitting operation of a control means for checking and changing control data during an operation of an operation

history reading means at any time.

[Claim 35]A vending machine controller given in any 1 paragraph of claims 1 thru/or 34 provided with a control data restoration means to eliminate control data which a check alteration means changed, and to restore old control data.

[Claim 36]A vending machine controller given in any 1 paragraph of claims 1 thru/or 35 characterized by having a displaying means which indicates that an operation history memory measure is in each operating state during memory of an operation history at the time of an end of memory of an operation history at the time of a memory start of an operation history by an operation history memory measure.

[Claim 37]A vending machine controller given in any 1 paragraph of claims 1 thru/or 36 characterized by having a displaying means which indicates that an operation history reading means is in each operating state during reading and reading discontinuation at the time of an end of reading at the time of resumption of reading at the time of a reading start of an operation history by an operation history reading means.

[Translation done.]

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- 2.*** shows the word which can not be translated.
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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to a vending machine controller provided with the control means which performs operation for checking and changing the control data of a vending machine, and the check alteration means which searches and displays check object data based on the operation history of a control means, and changes change target data.

[0002]

[Description of the Prior Art]In the vending machine controller which has the above-mentioned composition, the operation staff of the vending machine was doing manual operation of the control means of a remote control unit etc. intricately at a given degree of the check of control data, and alteration work conventionally. When check of the same control data and alteration work were performed to two or more vending machine controllers, the operation staff of the vending machine was doing manual operation of the control means of a remote control unit etc. intricately for every vending machine controller.

[0003]

[Problem(s) to be Solved by the Invention]In the conventional vending machine controller, since manual operation of the control means of a remote control unit etc. was intricately carried out at a given degree of the check of control data, and alteration work, Since manual operation of the control means of a remote control unit etc. was intricately carried out for every vending machine controller when check of the same control data and alteration work were performed to two or more vending machine controllers, the operation staff's load was large. In light of the above-mentioned problems, this invention is a vending machine controller provided with the control means which performs operation for checking and changing the control data of a vending machine, and the check alteration means which searches and displays check object data based on the operation history of a control means, and changes change target data. The

purpose is for the load of the operation staff of a vending machine at the time of checking and changing control data to provide few vending machine controllers compared with the former.

[0004]

[Means for Solving the Problem] In this invention in order to solve an aforementioned problem, A control means for checking and changing control data of a vending machine, and an operation history memory measure which memorizes an operation history of a control means, A vending machine controller provided with an operation history reading means which reads an operation history from an operation history memory measure, and a check alteration means which searches and displays check object data based on a read operation history, and changes change target data is provided.

[0005] In a vending machine controller concerning this invention, If an operation history memory measure is made to memorize various operation histories for checked and changing various control data of a vending machine which carried out manual operation of the control means intricately beforehand and in which this control device was incorporated, If a desired operation history is made to read into an operation history reading means from an operation history memory measure after that according to a situation, Since a check alteration means changes an analytical table example and change target control data for control data for a check based on a read operation history, there is no necessity of carrying out manual operation of the control means intricately at a given degree of a check of control data and alteration work like before. If an operation history of a control means of the vending machine controller A which an operation history memory measure of the vending machine controller A memorized, for example is made to read into the vending machine controller B, C, and D and an operation history reading means of E, Since it is analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E change control data of a vending machine in which the vending machine controller B, C, and D and E were incorporated based on a read operation history, When performing a check of the vending machine controller B, C, and D and the control data same at E as the vending machine controller A, and alteration work, there is no necessity of carrying out manual operation of the control means intricately for every vending machine controller. Therefore, in a vending machine controller concerning this invention, there is little load of an operation staff of a vending machine at the time of checking and changing control data compared with the former.

[0006] In a desirable mode of this invention, an operation history memory measure has the portable memory with which a vending machine controller was equipped removable. A portable memory which an operation history memory measure of the vending machine controller A has can be made to memorize various operation histories of a control means of the vending machine controller A for carrying out a check of various control data of a vending machine in

which the vending machine controller A was incorporated, and making a change. If the vending machine controller A is equipped with said portable memory and a desired operation history is made to read into an operation history reading means of the vending machine controller A from said portable memory, Based on a read operation history, it is analytical-table-shown and a check alteration means of the vending machine controller A changes control data of a vending machine in which the vending machine controller A was incorporated. An operation history of a control means of the vending machine controller A which a portable memory which an operation history memory measure of the vending machine controller A has memorized, If the vending machine controller B, C, and D and E are equipped with said portable memory and it is made to read into the vending machine controller B, C, and D and an operation history reading means of E, Based on a read operation history, it is analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E change control data of a vending machine in which the vending machine controller B, C, and D and E were incorporated. A portable memory is convenient to carry.

[0007]In a desirable mode of this invention, an operation history memory measure has a vending machine controller internal memory. A vending machine controller internal memory which an operation history memory measure of the vending machine controller A has can be made to memorize various operation histories of a control means of the vending machine controller A for carrying out a check of various control data of a vending machine in which the vending machine controller A was incorporated, and making a change. If a desired operation history is made to read into an operation history reading means of the vending machine controller A from the internal memory concerned, based on a read operation history, it will be analytical-table-shown and a check alteration means of the vending machine controller A will change control data of a vending machine in which the vending machine controller A was incorporated. An operation history of a control means of the vending machine controller A which a vending machine controller internal memory which an operation history memory measure of the vending machine controller A has memorized via a dedicated line or a public line, If it is made to read into the vending machine controller B, C, and D and an operation history reading means of E, based on a read operation history, it will be analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E will change control data of a vending machine in which the vending machine controller B, C, and D and E were incorporated. Since there is no necessity of carrying like a portable memory, it is convenient.

[0008]In a desirable mode of this invention, an operation history memory measure has the portable memory with which other vending machine controllers connected to a vending machine controller via a circuit were equipped removable. A check of various control data of a vending machine in which the vending machine controller A was incorporated, A portable

memory which an operation history memory measure of the vending machine controller B connected to the vending machine controller A via a circuit has can be made to memorize various operation histories of a control means of the vending machine controller A for changing. If the vending machine controller A is equipped with a portable memory which an operation history memory measure of the vending machine controller B has and a desired operation history is made to read into an operation history reading means of the vending machine controller A from said portable memory, Based on a read operation history, it is analytical-table-shown and a check alteration means of the vending machine controller A changes control data of a vending machine in which the vending machine controller A was incorporated. An operation history of a control means of the vending machine controller A which a portable memory which an operation history memory measure of the vending machine controller B has memorized, If the vending machine controller B, C, and D and E are equipped with the portable memory concerned and it is made to read into the vending machine controller B, C, and D and an operation history reading means of E, Based on a read operation history, it is analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E change control data of a vending machine in which the vending machine controller B, C, and D and E were incorporated. A portable memory is convenient to carry.

[0009]In a desirable mode of this invention, an operation history memory measure has other vending machine controller internal memories connected to a vending machine controller via a circuit. A check of various control data of a vending machine in which the vending machine controller A was incorporated, A vending machine controller internal memory which an operation history memory measure of the vending machine controller B connected to the vending machine controller A via a circuit has can be made to memorize various operation histories of a control means of the vending machine controller A for changing. If a desired operation history is made to read into an operation history reading means of the vending machine controller A from a vending machine controller internal memory which an operation history memory measure of the vending machine controller B has via a circuit, Based on a read operation history, it is analytical-table-shown and a check alteration means of the vending machine controller A changes control data of a vending machine in which the vending machine controller A was incorporated. An operation history of a control means of the vending machine controller A which a vending machine controller internal memory which an operation history memory measure of the vending machine controller B has memorized, If it is made to read into an operation history reading means of the vending machine controller C, D, and E which made read into an operation history reading means of the vending machine controller B, and was connected to the vending machine controller B via a circuit, Based on a read operation history, it is analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E change control data of a vending machine in which the vending machine

controller B, C, and D and E were incorporated. Since there is no necessity of carrying like a portable memory, it is convenient.

[0010]In a desirable mode of this invention, an operation history memory measure has the portable memory with which a personal computer connected to a vending machine controller via a circuit was equipped removable. A portable memory with which a personal computer connected to the vending machine controller A via a circuit was equipped removable can be made to memorize various operation histories of a control means of the vending machine controller A for carrying out a check of various control data of a vending machine in which the vending machine controller A was incorporated, and making a change. If the vending machine controller A is equipped with said portable memory and a desired operation history is made to read into an operation history reading means of the vending machine controller A from said portable memory, Based on a read operation history, it is analytical-table-shown and a check alteration means of the vending machine controller A changes control data of a vending machine in which the vending machine controller A was incorporated. If the vending machine controller B, C, and D and E are equipped with said portable memory and an operation history of a control means of the vending machine controller A which said portable memory memorized is made to read into the vending machine controller B, C, and D and an operation history reading means of E, Based on a read operation history, it is analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E change control data of a vending machine in which the vending machine controller B, C, and D and E were incorporated. A portable memory is convenient to carry.

[0011]In a desirable mode of this invention, an operation history memory measure has the personal computer internal memory connected to a vending machine controller via a circuit. A personal computer internal memory connected to the vending machine controller A via a circuit can be made to memorize various operation histories of a control means of the vending machine controller A for carrying out a check of various control data of a vending machine in which the vending machine controller A was incorporated, and making a change. If a desired operation history is made to read into an operation history reading means of the vending machine controller A from said personal computer internal memory via a circuit, Based on a read operation history, it is analytical-table-shown and a check alteration means of the vending machine controller A changes control data of a vending machine in which the vending machine controller A was incorporated. If an operation history of a control means of the vending machine controller A which said personal computer internal memory memorized is made to read into the vending machine controller B, C, and D connected to a personal computer via a circuit, and an operation history reading means of E, Based on a read operation history, it is analytical-table-shown and the vending machine controller B, C, and D and a check alteration means of E change control data of a vending machine in which the vending machine controller

B, C, and D and E were incorporated. Since there is no necessity of carrying like a portable memory, it is convenient.

[0012]In a desirable mode of this invention, an operation history memory measure, A portable memory, a vending machine controller internal memory with which a vending machine controller was equipped removable, A portable memory with which other vending machine controllers connected to a vending machine controller via a circuit were equipped removable, Other vending machine controller internal memories connected to a vending machine controller via a circuit, A portable memory with which a personal computer connected to a vending machine controller via a circuit was equipped removable, It has two or more memories concerning arbitrary combination in a personal computer internal memory connected to a vending machine controller via a circuit, and a vending machine controller is provided with the 1st memory selecting means which chooses further a memory which makes an operation history of a control means memorize. If an operation history memory measure can choose a memory which has a memory of various gestalten and makes an operation history memorize from a memory of various gestalten, the usability of the increase of flexibility at the time of making an operation history memorize and a vending machine controller will improve.

[0013]In a desirable mode of this invention, an operation history memory measure, A portable memory, a vending machine controller internal memory with which a vending machine controller was equipped removable, A portable memory with which other vending machine controllers connected to a vending machine controller via a circuit were equipped removable, Other vending machine controller internal memories connected to a vending machine controller via a circuit, A portable memory with which a personal computer connected to a vending machine controller via a circuit was equipped removable, It has two or more memories concerning arbitrary combination in a personal computer internal memory connected to a vending machine controller via a circuit, and a vending machine controller is further provided with the 2nd memory selecting means which chooses a memory of an operation history reading place. If an operation history memory measure has a memory of various gestalten and can choose a memory of an operation history reading place from a memory of various gestalten, the usability of the increase of flexibility at the time of reading an operation history and a vending machine controller will improve.

[0014]In a desirable mode of this invention, a circuit is a dedicated line. In a desirable mode of this invention, a circuit is a public line. A dedicated line may be sufficient as a circuit, or a public line may be sufficient as it.

[0015]In a desirable mode of this invention, the operation history memory measure can memorize two or more operation histories. Since it is attached to one operation history and it is not necessary to allocate one operation history memory measure if memory of two or more operation histories is possible for one operation history memory measure, a jump of a

manufacturing cost of a vending machine controller can be controlled.

[0016]In a desirable mode of this invention, based on all the operation histories which an operation history reading means read, automatically, a search display of control data is performed and a check alteration means makes a change. When a search display of control data based on a check alteration means is performed and a change is automatically made based on all the operation histories which an operation history reading means read, load of an operation staff of a vending machine is substantially reduced to abbreviated zero.

[0017]A vending machine controller is provided with the 1st operation history selecting means which chooses an operation history which is based when a search display of control data is performed and a check alteration means makes a change from operation histories which an operation history reading means read in a desirable mode of this invention. If an operation history which is based when a search display of control data is performed and a check alteration means makes a change can be chosen from operation histories which an operation history reading means read, the usability of the increase of flexibility of a control data check and alteration work and a vending machine controller will improve.

[0018]In a desirable mode of this invention, time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes. Since the time information concerned will turn into identification data of an operation history if time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes when making an operation history memory measure memorize two or more operation histories, It becomes possible to choose said identification data as a reliance out of an operation history read in an operation history which is based when a search display of control data is performed and a check alteration means makes a change.

[0019]In a desirable mode of this invention, time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes, based on an operation history performed most these days, a search display of control data is performed and a check alteration means makes a change. Since an operation history performed most these days is generally the most preferred at present when two or more operation histories are memorized by operation history memory measure, if a search display of control data is performed and a change is made based on an operation history performed most these days, there are few dangers that a problem will occur.

[0020]It is contained in an operation history which an operation history memory measure memorizes by identification data of a control program of a vending machine in a desirable mode of this invention, and a check alteration means, Based on an operation history in which the same identification data as identification data of a control program of a vending machine in which a vending machine controller provided with the check alteration means concerned was

incorporated is contained, a search display of control data is performed and a change is made. Control programs of a vending machine differ depending on the model of a vending machine, and are changed suitably. Based on an operation history of a control means of the vending machine controller A, a check alteration means of the vending machine controller B built into vending machine B' controlled by a different control program from a control program of vending machine A' into which the vending machine controller A was built, If it is analytical-table-shown and control data of vending machine B' is changed, the vending machine controller B and by extension, vending machine B' may cause malfunction. Include identification data of control programs, such as a version number of a control program name, a control program creation fiscal year, and a control program, in an operation history, and a check alteration means, If it constitutes so that a search display of control data may be performed and a change may be made based on an operation history in which the same identification data as identification data of a control program of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained, Malfunction of a vending machine controller caused an analytical table example and by changing in control data based on an operation history of a control means performed under a different control program and by extension, malfunction of a vending machine can be prevented.

[0021]It is contained in an operation history which an operation history memory measure memorizes by apparatus setting data of a vending machine in a desirable mode of this invention, and a check alteration means, Based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained, a search display of control data is performed and a change is made. Whether identification data of a control program of a vending machine is the same or a control program of a vending machine is the same, By vending machine A' into which the vending machine controller A was built, and vending machine B' into which the vending machine controller B was built, equipment setting conditions, such as the number of product housing columns under operation and a commodity selection button number under operation, may differ. If in this case it is based on an operation history of a control means of the vending machine controller A, and in a check alteration means of the vending machine controller B it is analytical-table-shown and a means changes control data of vending machine B', the vending machine controller B and by extension, vending machine B' may cause malfunction. Include apparatus setting data of vending machines, such as the number of product housing columns under operation, and a commodity selection button number under operation, in an operation history, and a check alteration means, If it constitutes so that a search display of control data may be performed and a change may be made based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine

controller provided with the check alteration means concerned was incorporated is contained, Malfunction of a vending machine controller caused an analytical table example and by changing in control data based on an operation history of a control means for a vending machine in which equipment setting conditions differ, and by extension, malfunction of a vending machine can be prevented.

[0022]Identification data of a control program of a vending machine in which a vending machine controller was built into an operation history which an operation history memory measure memorizes in a desirable mode of this invention, It is contained by apparatus setting data of a vending machine and a check alteration means, The same identification data as identification data of a control program of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained, And based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained, a search display of control data is performed and a change is made. If it is based on an operation history of a control means for a vending machine of the same control program and the same equipment setting conditions, and it is analytical-table-shown and control data is changed, Malfunction of a vending machine controller caused by a difference of a control program and difference of equipment setting conditions and by extension, malfunction of a vending machine can be prevented.

[0023]In a desirable mode of this invention, a vending machine controller, Time when operation of a control means was performed, identification data of a control program of a vending machine, Have a data selection means which chooses arbitrary one or more in apparatus setting data of a vending machine, and an operation history memory measure is made to memorize, and a check alteration means, When time when operation of a control means was performed is contained in an operation history which an operation history memory measure memorizes, Based on an operation history chosen as a reliance, the time concerned A search display of control data, When identification data of a control program of a vending machine is contained in an operation history which changing is possible and an operation history memory measure memorizes, The same identification data as identification data of a control program of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated based on an operation history included A search display of control data, When apparatus setting data of a vending machine is contained in an operation history which is changed and an operation history memory measure memorizes, Based on an operation history in which the same apparatus setting data as apparatus setting data of a vending machine in which a vending machine controller provided with the check alteration means concerned was incorporated is contained, a search display of

control data is performed and a change is made.

[0024]All of a control program of two or more vending machines in which a vending machine controller concerning this invention is incorporated, and equipment setting conditions should just choose an operation history which is based when a search display of control data is performed and a check alteration means makes a change based on time when operation of a control means was performed, when the same. All of a control program of two or more vending machines in which a vending machine controller concerning this invention is incorporated should just choose an operation history which is based when a search display of control data is performed and a check alteration means makes a change based on time and/or apparatus setting data in which operation of a control means was performed, when the same. All of apparatus setting data of two or more vending machines in which a vending machine controller concerning this invention is incorporated in being the same, What is necessary is just to choose an operation history which is based when a search display of control data is performed and a check alteration means makes a change based on time and/or control program identification data in which operation of a control means was performed. Therefore, it is useful to allocate a data selection means which chooses arbitrary one or more in time when operation of a control means was performed, identification data of a control program of a vending machine, and apparatus setting data of a vending machine according to a situation of two or more target vending machines, and an operation history memory measure is made to memorize.

[0025]In a desirable mode of this invention, based on all the operation histories that can be based, automatically, a search display of control data is performed and a check alteration means makes a change. It compares with time when operation of a control means was performed, identification data of a control program of a vending machine, apparatus setting data of a vending machine, etc., If a search display of control data is performed and a check alteration means makes a change automatically based on all the operation histories that can be based when there are two or more operation histories which can be based when a search display of control data is performed and a check alteration means makes a change, load of an operation staff of a vending machine will be substantially reduced to abbreviated zero.

[0026]A vending machine controller is provided with the 2nd operation history selecting means which chooses a desired operation history out of an operation history on which a check alteration means can be based in a desirable mode of this invention. It compares with time when operation of a control means was performed, identification data of a control program of a vending machine, apparatus setting data of a vending machine, etc., Even when there are two or more operation histories which can be based when a search display of control data is performed and a check alteration means makes a change, there is a case where he would like to perform a check of control data and to make a change based on a specific operation history

in two or more operation histories concerned. It is convenient, if there is the 2nd operation history selecting means which chooses a desired operation history out of an operation history on which a check alteration means can be based when starting.

[0027]A vending machine controller is provided with a control data displaying means which displays control data which a check alteration means changed in a desirable mode of this invention. If control data which a check alteration means changed is displayed, the operation staff of a vending machine can check the contents of the control data. As a result, generating of the inconvenient situation of control data being changed unsuitably is prevented.

[0028]In a desirable mode of this invention, it is included in an operation history which an operation history memory measure memorizes by actual operation interval of a control means, and a check alteration means and a control data displaying means, With a time interval equal to an operation interval included in an operation history which an operation history reading means read, a search display of control data, change, and a display are performed. If a search display of control data, change, and a display are performed with a time interval equal to a actual operation interval of a control means included in an operation history which an operation history reading means read, the operation staff of a vending machine can recognize the contents of the control data visually clearly. As a result, generating of the inconvenient situation of control data being changed unsuitably is prevented.

[0029]In a desirable mode of this invention, it is included in an operation history which an operation history memory measure memorizes by operation interval to which a control means was set beforehand, and a check alteration means and a control data displaying means, With a time interval equal to an operation interval included in an operation history which an operation history reading means read, a search display of control data, change, and a display are performed. With a time interval equal to an operation interval which is included in an operation history which an operation history reading means read and which was set up beforehand. If a search display of control data, change, and a display are performed, when an operation interval set up beforehand is long, Since the operation staff of a vending machine can recognize the contents of the control data visually clearly, generating of the inconvenient situation of control data being changed unsuitably is prevented, and when an operation interval set up beforehand is short, time which a check of control data and alteration work take is shortened.

[0030]In a desirable mode of this invention, a check alteration means and a control data displaying means perform a search display of control data, change, and a display with a time interval set up beforehand. If a search display of control data, change, and a display are performed with a time interval beforehand set up regardless of an operation interval of a control means included in an operation history irrespective of whether an operation interval of a control means is included in an operation history, Since the operation staff of a vending

machine can recognize the contents of the control data visually clearly when an operation interval set up beforehand is long, Generating of the inconvenient situation of control data being changed unsuitably is prevented, and when an operation interval set up beforehand is short, time which a check of control data and alteration work take is shortened.

[0031]In a desirable mode of this invention, a actual operation interval or an operation interval set up beforehand of a control means is included in an operation history which an operation history memory measure memorizes, A check alteration means and a control data displaying means are a time interval equal to an operation interval included in an operation history which an operation history reading means read, or the time interval set up beforehand, Perform a search display of control data, change, and a display, and further a vending machine controller, It has a time interval selecting means which chooses whether a search display of control data, change, and a display are performed with a time interval equal to an operation interval included in an operation history, or a search display of control data, change, and a display are performed with a time interval set up beforehand. It is convenient if it can be chosen whether a search display of control data, change, and a display are performed with a time interval which performed a search display of control data, change, and a display with a time interval equal to an operation interval of a control means included in an operation history, or was set up beforehand.

[0032]A vending machine controller is provided with an operate time setting-out means to set up an operation interval beforehand, in a desirable mode of this invention. It is convenient if an operation interval which an operation history memory measure memorizes can be set up arbitrarily.

[0033]A vending machine controller is provided with a time interval setting-out means by which a check alteration means and a control data displaying means set up a time interval which performs a search display of control data, change, and a display, in a desirable mode of this invention. It is convenient if a time interval which sets up a time interval which performs a search display of control data, change, and a display can be set up arbitrarily.

[0034]A vending machine controller is provided with an operation history editing means which edits an operation history which an operation history memory measure memorized in a desirable mode of this invention. If an operation history which an operation history memory measure memorized can be edited, it can be based on an operation history suitable for the actual condition, and control data can be checked and changed.

[0035]A vending machine controller is provided with an operation history erasing means which eliminates an operation history which an operation history memory measure is memorizing during operation of a control means in a desirable mode of this invention. Since operation of a control means can be redone and an operation history memory measure can be made to memorize a right operation history when a failure is committed during operation of a control

means if an operation history which an operation history memory measure is memorizing is eliminable, it is convenient.

[0036]A vending machine controller is provided with a reading discontinuation means to interrupt reading of an operation history during an operation of an operation history reading means, and a resumption means of reading to make reading of an interrupted operation history resume, in a desirable mode of this invention. It is convenient to correct specific operation in a read operation history if reading of an operation history which was made to interrupt reading of an operation history during an operation of an operation history reading means, performed a transfer method using a control means and was interrupted after that can be resumed.

[0037]In a desirable mode of this invention, a vending machine controller permits operation of a control means for checking and changing control data during an operation of an operation history reading means only at the time of reading discontinuation. During an operation of an operation history reading means, by constituting a vending machine controller so that operation of a control means for checking and changing control data may be permitted only at the time of reading discontinuation, A control means is accidentally operated during an operation of an operation history reading means, and generating of the situation where an operation history is corrected accidentally is prevented.

[0038]In a desirable mode of this invention, a vending machine controller permits operation of a control means for checking and changing control data at any time during an operation of an operation history reading means. When a search display of control data, change, and a display are performed with a time interval long enough, When control data which an operation staff of a vending machine which recognized visually control data by which it was indicated by search, and changed control data recognized visually is unsuitable, it is physically possible enough to operate a control means and to correct control data into said time interval. Therefore, it is useful to constitute a vending machine controller so that operation of a control means for checking and changing control data during an operation of an operation history reading means may be permitted at any time.

[0039]A vending machine controller is provided with a control data restoration means to eliminate control data which a check alteration means changed, and to restore old control data, in a desirable mode of this invention. When control data after change is unsuitable, it is convenient, if the control data concerned can be eliminated and old control data can be restored.

[0040]In a desirable mode of this invention, a vending machine controller is provided with a displaying means which indicates that an operation history memory measure is in each operating state during memory of an operation history at the time of an end of memory of an operation history at the time of a memory start of an operation history by an operation history memory measure. It is convenient if an operating state of an operation history memory

measure can be grasped.

[0041]In a desirable mode of this invention, a vending machine controller is provided with a displaying means which indicates that an operation history reading means is in each operating state during reading and reading discontinuation at the time of an end of reading at the time of resumption of reading at the time of a reading start of an operation history by an operation history reading means. It is convenient if an operating state of an operation history reading means can be grasped.

[0042]

[Embodiment of the Invention]The example of this invention is described. As shown in drawing 1, the vending machine controller A. The control section 1 which has CPU11, and ROM12 and RAM13 in which the control program of vending machine A' (not shown) with which the vending machine controller A was incorporated was stored, It has the final controlling element 3 which has the portable memories 2, such as a memory card with which the control section 1 was equipped removable, and a remote control unit and the goods selector button of vending machine A', and the indicator 4. Two or more input keys are allocated by the remote control unit of the final controlling element 3. The personal computer 5 is connected to CPU11 via the dedicated line or the public line, and the personal computer 5 is equipped with the portable memories 6, such as a memory card, removable. The vending machine controller A, the vending machine controller B, C, and D which has the same composition, and E are connected to CPU11 via the dedicated line or the public line. The vending machine controller B, C, and D and E are included in vending machine B', C', D', and E' (not shown). The control section of the vending machine controller B is equipped with the portable memory 7 removable. It is equipped with the same portable memory also as the control section of the vending machine controller C, D, and E removable.

[0043]The operation history memory operation of the vending machine controller concerning this example is explained. The operation staff of a vending machine The check of price data, temperature control data, sales data, etc., the input key of the remote control unit which constitutes the final controlling element 3 of the vending machine controller A according to the control data of vending machine A' to change -- or the remote control unit and the goods selector button of vending machine A' which constitute the final controlling element 3 of the vending machine controller A are pushed one by one according to a predetermined procedure. For example, in changing the price data of the goods stored by product-housing-columns alpha of vending machine A'. As shown in drawing 2, the "start" key of the remote control unit of the final controlling element 3 is pressed, Subsequently, the goods selector button of vending machine A' corresponding to product-housing-columns alpha is pushed, subsequently the "rise" key of the remote control unit of the final controlling element 3 and the "down" key are pressed suitably, a price is changed into beta circle and, finally the "end" key of the remote

control unit of the final controlling element 3 is pressed.

[0044]On each operation history of the input key of the final controlling element 3 containing the input key and goods selector button of a remote control unit, and a twist concrete target. Each operation histories, such as "start" key operation, "goods selector button" operation, "rise" key operation, "down" key operation, and "end" key operation, are inputted into the key buffer which is the predetermined temporary storage secured in RAM13 one by one. According to the control program of vending machine A' read from ROM12, CPU11, Based on each operation history of the input key of the final controlling element 3 inputted into a key buffer one by one, The control data of vending machine A' which searched the control data of vending machine A' memorized to the predetermined storage area in CPU11, and was displayed on the indicator 4, or was memorized to the predetermined storage area in CPU11 is changed, and it displays on the indicator 4.

[0045]For example, when the "goods selector button a" operation is inputted into a key buffer, CPU11, If the price data of 110 yen of the goods stored by product-housing-columns alpha corresponding to the goods selector button a memorized to the self predetermined storage area is displayed on the indicator 4 and "rise" key operation is inputted subsequently to a key buffer, If CPU11 changes said price data into 120, the prices of 120 yen are displayed on the indicator 4 and "rise" key operation is inputted subsequently to a key buffer, If CPU11 changes said price data into 130, the prices of 130 yen are displayed on the indicator 4 and "down" key operation is inputted subsequently to a key buffer, CPU11 will change said price data into 120, and will display the prices of 120 yen on the indicator 4.

[0046]After a series of operation histories of the input key of the final controlling element 3 which started with operation of a "start" key are completed by operation of an "end" key, CPU11 ends the search display of control data, and a change operation.

[0047]CPU11 copies each operation history of the input key of the final controlling element 3 inputted into a key buffer one by one one by one to the buffer which is the predetermined temporary storage secured in RAM13 according to the control program of vending machine A' read from ROM12. After a series of operation histories of the input key of the final controlling element 3 which started with operation of a "start" key are completed by operation of an "end" key, CPU11, According to the control program of vending machine A' read from ROM12, A series of whole operation history of the input key of the final controlling element 3 copied to the buffer. Make the predetermined storage area secured in RAM13 memorize, or output to the portable memory 2 and the portable memory 2 is made to memorize, Or output to the personal computer 5, and make RAM of the personal computer 5 memorize, or the portable memory 6 which outputted to the personal computer 5 and with which the personal computer 5 was equipped is made to memorize, Or output to the vending machine controller B, and RAM of the vending machine controller B is made to memorize, or the portable memory 7 which outputted

to the vending machine controller B and with which the vending machine controller B was equipped is made to memorize. Selection of the storage destinations of an operation history is automatically performed according to the control program of vending machine A' which it was carried out when the operation staff of a vending machine operated the input key of the final controlling element 3, or was read from ROM12. If two or more storage destinations are chosen, two or more storage destinations concerned will memorize an operation history.

[0048]A series of operation histories of the input key of the final controlling element 3 which the operation staff of a vending machine starts with operation of a "start" key, and ends by operation of an "end" key (in the following texts) "a series of operation histories of the input key of the final controlling element 3" -- only -- "the operation history of the final controlling element 3" -- calling, if it repeats two or more times, It is indicated by search, and the control data of vending machine A' is changed each time, and and two or more operation histories of the final controlling element 3, Memorize in the predetermined storage area secured in RAM13, or the portable memory 2 memorizes, Or the portable memory 7 which was memorized by the portable memory 6 which was memorized by RAM of the personal computer 5 or, with which the personal computer 5 was equipped, or was memorized by RAM of the vending machine controller B or with which the vending machine controller B was equipped memorizes, or two or more memories in the above-mentioned memory memorize.

[0049]The 1st mode of an operation history reading operation of the vending machine controller concerning this example is explained. If the operation staff of a vending machine operates the input key of the final controlling element 3 and makes an operation history reading operation start, CPU11 will copy the old control data memorized to the own predetermined storage area to the predetermined storage area in RAM13, and will evacuate it temporarily. According to the control program of vending machine A' read from ROM12, CPU11, Various operation histories of the final controlling element 3 which the predetermined storage area in RAM13 memorized are copied to the buffer in RAM13, Or various operation histories of the final controlling element 3 which the portable memory 2 with which the vending machine controller A was equipped memorized are copied to the buffer in RAM13, Or various operation histories of the final controlling element 3 which RAM of the personal computer 5 memorized are copied to the buffer in RAM13, Or various operation histories of the final controlling element 3 which the portable memory 6 with which the personal computer 5 was equipped memorized are copied to the buffer in RAM13, Or various operation histories of the final controlling element 3 which RAM of the vending machine controller B memorized are copied to the buffer in RAM13, Or various operation histories of the final controlling element 3 which the portable memory 7 with which the vending machine controller B was equipped memorized are copied to the buffer in RAM13, Or various operation histories of the final controlling element 3 which the portable memories 6 and 7 with which the vending machine

controller A was equipped memorized are copied to the buffer in RAM13, Or the portable memory 2 which copied various operation histories of the final controlling element 3 which the portable memories 2 and 7 with which the personal computer 5 was equipped memorized to the buffer in RAM13 or with which the vending machine controller B was equipped. Various operation histories of the final controlling element 3 which 6 memorized are copied to the buffer in RAM13. Selection of the reading place of an operation history is automatically performed according to the control program of vending machine A' which it was carried out when the operation staff of a vending machine operated the input key of the final controlling element 3, or was read from ROM12.

[0050]According to the control program of vending machine A' read from ROM12, CPU11, About all various operation histories of the final controlling element 3 copied to the buffer in RAM13. Each operation history, for example, "rise" key operation, of the input key of the final controlling element 3 which constitutes said operation history, "down" key operation etc. being copied to the key buffer in RAM13, or one by one, automatically, About the specific operation history selected from various operation histories of the final controlling element 3 which the operation staff of the vending machine operated the input key of the final controlling element 3, and was copied to the buffer in RAM13. Each operation history of the input key of the final controlling element 3 which constitutes the operation history concerned is copied to the key buffer in RAM13 one by one.

[0051]According to the control program of vending machine A' read from ROM12, CPU11, Based on each operation history of the input key of the final controlling element 3 copied to the key buffer in RAM13 one by one, The control data of vending machine A' which searched the control data of vending machine A' memorized to the predetermined storage area in CPU11, and was displayed on the indicator 4, or was memorized to the predetermined storage area in CPU11 is changed, and it displays on the indicator 4. After the operation history of the final controlling element 3 which started with operation of a "start" key is completed by operation of an "end" key, the search display of the control data based on CPU11 and change are completed. If two or more operation histories are copied to a key buffer, it will be indicated by search and two or more control data will be changed. CPU11 controls the operation of vending machine A' based on the control program of vending machine A' read from ROM12, and the control data memorized to said self predetermined storage area.

[0052]So that the above-mentioned explanation may show the operation staff of a vending machine, If it makes it memorize various operation histories of the final controlling element 3 any of the memory of once versatility they are, when checking and changing the control data of vending machine A' henceforth, there is no necessity of operating the final controlling element 3 intricately at a given degree of the check of control data and change like before. Therefore, in the vending machine controller concerning this example, there is little load of the operation

staff of the vending machine at the time of checking and changing control data compared with the former.

[0053]The 2nd mode of an operation history reading operation of the vending machine controller concerning this example is explained. The operation staff of a vending machine removes the portable memory 2 which memorized the operation history of the final controlling element 3 of the vending machine controller A from the vending machine controller A, Or the portable memory 7 which removed the portable memory 6 which memorized the operation history of the final controlling element 3 of the vending machine controller A from the personal computer 5, or memorized the operation history of the final controlling element 3 of the vending machine controller A is removed from the vending machine controller B, and the vending machine controller A, B, and C, D, and E are equipped. When the operation staff of a vending machine operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, CPU of the vending machine controller A, B, and C, D, and E, The old control data memorized to the own predetermined storage area is copied to the predetermined storage area in RAM of the vending machine controller A, B, and C, D, and E, and is evacuated temporarily. CPU of the vending machine controller A, B, and C, D, and E, The vending machine controller A, B, and C, D, vending machine A' read from ROM of E, According to the control program of B', C', D', and E', the operation history of the final controlling element 3 of the vending machine controller A which the portable memory 2, the portable memory 6, or the portable memory 7 memorized is copied to the buffer in RAM of the vending machine controller A, B, and C, D, and E.

[0054]CPU of the vending machine controller A, B, and C, D, and E, The vending machine controller A, B, and C, D, vending machine A' read from ROM of E, According to the control program of B', C', D', and E', the vending machine controller A. Each operation history of the input key of the final controlling element 3 which constitutes the operation history of the final controlling element 3 copied to the buffer in RAM of B, C, D, and E is copied to the key buffer in RAM of the vending machine controller A, B, and C, D, and E one by one.

[0055]CPU of the vending machine controller A, B, and C, D, and E, The vending machine controller A, B, and C, D, vending machine A' read from ROM of E, According to the control program of B', C', D', and E', the vending machine controller A. Based on each operation history of the input key of the final controlling element 3 copied to the key buffer in RAM of B, C, D, and E one by one, The control data of vending machine A' memorized to the predetermined storage area in CPU of the vending machine controller A, B, and C, D, and E, B', C', D', and E' is searched, Display on the indicator of the vending machine controller A, B, and C, D, and E, and Or the vending machine controller A. The control data of vending machine A' memorized to the predetermined storage area in CPU of B, C, D, and E, B', C', D', and E' is changed, and it displays on the indicator of the vending machine controller A, B, and

C, D, and E. After the operation history of the final controlling element 3 which started with operation of a "start" key is completed by operation of an "end" key, the search display of the control data of vending machine A' by CPU of the vending machine controller A, B, and C, D, and E, B', C', D', and E' and change are completed. If two or more operation histories are copied to the key buffer of RAM of the vending machine controller A, B, and C, D, and E, it will be indicated by search and two or more control data of vending machine A', B', C', D', and E' will be changed. CPU of the vending machine controller A, B, and C, D, and E, Based on the control program of vending machine A' read from ROM of the vending machine controller A, B, and C, D, and E, B', C', D', and E', and the control data memorized to said self predetermined storage area, the operation of vending machine A', B', C', D', and E' is controlled.

[0056]When the operation staff of a vending machine performs check of the same control data, and alteration work by the vending machine controller A, B, and C, D, and E so that the above-mentioned explanation may show, there is no necessity of carrying out manual operation of the control means intricately for every vending machine controller. Therefore, in the vending machine controller concerning this invention, there is little load of the operation staff of the vending machine at the time of checking and changing control data compared with the former.

[0057]The 3rd mode of an operation history reading operation of the vending machine controller concerning this example is explained. When the operation staff of a vending machine operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, CPU of the vending machine controller A, B, and C, D, and E, The old control data memorized to the own predetermined storage area is copied to the predetermined storage area in RAM of the vending machine controller A, B, and C, D, and E, and is evacuated temporarily. CPU of the vending machine controller A, B, and C, D, and E, The vending machine controller A, B, and C, D, vending machine A' read from ROM of E, According to the control program of B', C', D', and E', the operation history of the final controlling element 3 of the vending machine controller A memorized in the predetermined storage area of RAM13 of the vending machine controller A, Or the operation history of the final controlling element 3 of the vending machine controller A memorized by RAM of the personal computer 5, Or the operation history of the final controlling element 3 of the vending machine controller A memorized by RAM of the vending machine controller B, Or the operation history of the final controlling element 3 of the vending machine controller A memorized by the portable memory 2 with which the vending machine controller A was equipped, Or personal computer 5 the operation history of the final controlling element 3 of the vending machine controller A memorized by the portable memory 6 with which it equipped, Or the operation history of the final controlling element 3 of the vending machine controller A memorized by the portable memory 7 with which the vending machine controller B was equipped is copied to the buffer in RAM of the vending machine controller A, B, and C, D, and E via a dedicated line or a

public line.

[0058]CPU of the vending machine controller A, B, and C, D, and E, The vending machine controller A, B, and C, D, vending machine A' read from ROM of E, According to the control program of B', C', D', and E', the vending machine controller A. Each operation history of the input key of the final controlling element 3 which constitutes the operation history of the final controlling element 3 copied to the buffer in RAM of B, C, D, and E is copied to the key buffer in RAM of the vending machine controller A, B, and C, D, and E one by one.

[0059]CPU of the vending machine controller A, B, and C, D, and E, The vending machine controller A, B, and C, D, vending machine A' read from ROM of E, According to the control program of B', C', D', and E', the vending machine controller A. Based on each operation history of the input key of the final controlling element 3 copied to the key buffer in RAM of B, C, D, and E one by one, The control data of vending machine A' memorized to the predetermined storage area in CPU of the vending machine controller A, B, and C, D, and E, B', C', D', and E' is searched, Display on the indicator of the vending machine controller A, B, and C, D, and E, and Or the vending machine controller A. The control data of vending machine A' memorized to the predetermined storage area in CPU of B, C, D, and E, B', C', D', and E' is changed, and it displays on the indicator of the vending machine controller A, B, and C, D, and E. After the operation history of the final controlling element 3 which started with operation of a "start" key is completed by operation of an "end" key, the search display of the control data of CPU **** vending machine A' of the vending machine controller A, B, and C, D, and E, B', C', D', and E' and change are completed. If two or more operation histories are copied to the key buffer of RAM of the vending machine controller A, B, and C, D, and E, it will be indicated by search and two or more control data of vending machine A', B', C', D', and E' will be changed. CPU of the vending machine controller A, B, and C, D, and E, Based on the control program of vending machine A' read from ROM of the vending machine controller A, B, and C, D, and E, B', C', D', and E', and the control data memorized to said self predetermined storage area, the operation of vending machine A', B', C', D', and E' is controlled.

[0060]When the operation staff of a vending machine performs check of the same control data, and alteration work by the vending machine controller A, B, and C, D, and E so that the above-mentioned explanation may show, there is no necessity of carrying out manual operation of the control means intricately for every vending machine controller. Therefore, in the vending machine controller concerning this invention, there is little load of the operation staff of the vending machine at the time of checking and changing control data compared with the former.

[0061]In this example, the operation history of the final controlling element 3 of the vending machine controller A, RAM13 of the vending machine controller A, the portable memory 2, RAM of the personal computer 5, Since the memory which can make the portable memory 6, RAM of the vending machine controller B, and the memory of the various gestalten of portable

memory 7 grade memorize, and makes an operation history memorize from the memory of said various gestalten can be chosen, The flexibility at the time of making an operation history memorize is large, and the usability of a vending machine controller is high.

[0062]In this example, RAM13 of the vending machine controller A, the portable memory 2, RAM of the personal computer 5, Since the memory of an operation history reading place can be chosen from the portable memory 6, RAM of the vending machine controller B, and the memory of the various gestalten of portable memory 7 grade, the flexibility at the time of reading an operation history is large, and the usability of a vending machine controller is high.

[0063]There is an advantage that it is lightweight in the portable memories 2, 6, and 7, and convenient to carry. There is an advantage that there is no necessity of carrying like a portable memory in transmission of the operation history of the final controlling element 3 through a dedicated line or a public line. There is an advantage that it can transmit certainly in a short time in transmission of the operation history of the final controlling element 3 through a dedicated line. There is an advantage that it can transmit also to the vending machine controller installed in the remote place cheaply in transmission of the operation history of the final controlling element 3 through a public line.

[0064]In this example, RAM13 of the vending machine controller A, the portable memory 2, RAM of the personal computer 5, the portable memory 6 and RAM of the vending machine controller B, and the portable memory 7, Since two or more operation histories of the final controlling element 3 are memorizable, it is attached to one operation history of the final controlling element 3, and it is not necessary to allocate one memory. As a result, the jump of the manufacturing cost of a vending machine controller is controlled.

[0065]In this example, all various operation histories of the final controlling element 3 copied to the buffer in RAM13. It is automatically copied to the key buffer in RAM13, and a search indication of the control data of vending machine A' is given based on the operation history concerned, and when changed, The load of the operation staff of the vending machine at the time of a control data check and alteration work is substantially reduced to abbreviated zero, and another side and the operation staff of a vending machine operate the input key of the final controlling element 3, The specific operation history selected from various operation histories of the final controlling element 3 copied to the buffer in RAM13, It is copied to the key buffer in RAM13, and when it is indicated by search and the control data of vending machine A' is changed based on the operation history concerned, the usability of the increase of the flexibility of a control data check and alteration work and the vending machine controller A improves.

[0066]In this example, the control data of vending machine A' which CPU of the vending machine controller A, B, and C, D, and E changed, B', C', D', and E', Since it is displayed on the indicator of the vending machine controller A, B, and C, D, and E, the operation staff of a

vending machine can recognize the contents of the changed control data visually. When the changed control data is unsuitable, the operation staff of the vending machine which recognized the control data visually can operate the final controlling element of the vending machine controller A, B, and C, D, and E, and can change control data. As a result, generating of the inconvenient situation of control data being changed unsuitably is prevented.

[0067]In this example, as shown in drawing 2, the time when operation of the input key of the final controlling element 3 was performed is contained in the operation history of the final controlling element 3 which RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B memorize. If the time when operation of the final controlling element 3 was carried out to the operation history is contained in them when making RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B memorize two or more operation histories of the final controlling element 3, Since the time information concerned turns into identification data of an operation history, the vending machine controller A. CPU of B, C, D, and E Search of the control data of vending machine A', B', C', D', and E', Said identification data is chosen as reliance from various operation histories of the final controlling element 3 which copied the operation history which is based when changing to the buffer in RAM of the vending machine controller A, B, and C, D, and E, It becomes possible to copy to the key buffer in RAM of the vending machine controller A, B, and C, D, and E. In this case, based on the operation history of the final controlling element 3 performed most these days, CPU of the vending machine controller A, B, and C, D, and E may constitute the vending machine controller A, B, and C, D, and E so that search of the control data of vending machine A', B', C', D', and E' may be performed and a change may be made. RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, Since the operation history of the final controlling element 3 performed most these days is generally the most preferred at present when two or more operation histories of the final controlling element 3 are memorized by RAM of the vending machine controller B, If search of control data is performed and a change is made based on the operation history of the final controlling element 3 performed most these days, there are few dangers that a problem will occur.

[0068]In this example, as shown in drawing 2, the identification data of the control program of vending machine A', such as a program name, a creation fiscal year of a program, and a version of a program, is contained in the operation history of the final controlling element 3 of the vending machine controller A. The vending machine controller B, C, and D and CPU of E, Only when the identification data of the control program of vending machine B', C', D', and E' and the identification data of the control program of vending machine A' are the same, The operation history of the final controlling element 3 copied to the vending machine controller B,

C, and D and the buffer of RAM of E is copied to the key buffer of the vending machine controller B, C, and D and RAM of E one by one, and the control data of vending machine B', C', D', and E' is searched and changed. The control programs of a vending machine differ depending on the model of a vending machine, and are changed suitably. Based on the operation history of the final controlling element 3 of the vending machine controller A, CPU of the vending machine controller B built into vending machine B' controlled by a different control program from the control program of vending machine A', If the control data of vending machine B' is searched and changed, the vending machine controller B and by extension, vending machine B' may cause malfunction. To the operation history of the final controlling element 3, a control program name, a control program creation fiscal year, Include the identification data of the control program of vending machine A', such as a version number of a control program, and CPU of the vending machine controller B, Only when the identification data of the control program of vending machine B' and the identification data of the control program of vending machine A' are the same, Namely, only when the control program of vending machine B' and the control program of vending machine A' are the same, If the operation history of the final controlling element 3 copied to the buffer of RAM of the vending machine controller B is copied to the key buffer of RAM of the vending machine controller B one by one, and the control data of vending machine B' is searched, and it constitutes so that it may change, A possibility that the vending machine controller B and by extension, vending machine B' will cause malfunction disappears.

[0069]In this example, as shown in drawing 2, the apparatus setting data of vending machine A' is contained in the operation history of the final controlling element 3 of the vending machine controller A. The vending machine controller B, C, and D and CPU of E, Only when the apparatus setting data of vending machine B', C', D', and E' and the apparatus setting data of vending machine A' are the same, The operation history of the final controlling element 3 copied to the vending machine controller B, C, and D and the buffer of RAM of E is copied to the key buffer of the vending machine controller B, C, and D and RAM of E one by one, and the control data of vending machine B', C', D', and E' is searched and changed. Even if the identification data of the control program of vending machine A' and vending machine B' is the same, That is, even if the control program of vending machine A' and vending machine B' is the same, equipment setting conditions, such as the number of product housing columns under operation and a commodity selection button number under operation, may differ by vending machine A' and vending machine B'. If CPU of the vending machine controller B searches and changes the control data of vending machine B' based on the operation history of the final controlling element 3 of the vending machine controller A in this case, the vending machine controller B and by extension, vending machine B' may cause malfunction. To the operation history of the final controlling element 3 of the vending machine controller A, the

number of product housing columns under operation, Include the apparatus setting data of vending machine A', such as a commodity selection button number under operation, and CPU of the vending machine controller B, Only when the apparatus setting data of vending machine B' and the apparatus setting data of vending machine A' are the same, If the operation history of the final controlling element 3 copied to the buffer of RAM of the vending machine controller B is copied to the key buffer of RAM of the vending machine controller B one by one, and the control data of vending machine B' is searched, and it constitutes so that it may change, A possibility that the vending machine controller B and by extension, vending machine B' will cause malfunction disappears.

[0070]In [so that above-mentioned explanation may show] this example, The vending machine controller B, C, and D and CPU of E, The identification data of the control program of vending machine B', C', D', and E' and the identification data of the control program of vending machine A' are the same, And only when the apparatus setting data of vending machine B', C', D', and E' and the apparatus setting data of vending machine A' are the same, The operation history of the final controlling element 3 copied to the vending machine controller B, C, and D and the buffer of RAM of E is copied to the key buffer of the vending machine controller B, C, and D and RAM of E one by one, Since the control data of vending machine B', C', D', and E' is searched and changed, there is no possibility that the vending machine controller B and by extension, vending machine B' will cause malfunction.

[0071]In this example, operate the input key of the final controlling element 3, and arbitrary one or more in the time when operation of the final controlling element 3 was performed, the identification data of the control program of vending machine A', and the apparatus setting data of vending machine A' are chosen, The vending machine controller A may be constituted so that RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B may be made to memorize. In this case, the vending machine controller A, B, and C, D, and E, When the time when operation of the final controlling element 3 was performed is contained in the operation history of the final controlling element 3 copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E, the operation history chosen as reliance in the time concerned -- or the operation history performed most these days is copied to the key buffer of RAM of the vending machine controller A, B, and C, D, and E, and it is constituted so that the control data of vending machine A', B', C', D', and E' may be searched and changed. The vending machine controller B, C, and D and E The vending machine controller B. When the identification data of the control program of vending machine A' is contained in the operation history of the final controlling element 3 copied to the buffer of RAM of C, D, and E, The identification data of the control program of vending machine A', vending machine B', C', Only when the identification data of the control program of D' and E' is the same, The operation

history of the final controlling element 3 copied to the vending machine controller B, C, and D and the buffer of RAM of E is copied to the key buffer of the vending machine controller B, C, and D and RAM of E, and it is constituted so that the control data of vending machine B', C', D', and E' may be searched and changed. The vending machine controller B, C, and D and E The vending machine controller B. When the apparatus setting data of vending machine A' is contained in the operation history of the final controlling element 3 copied to the buffer of RAM of C, D, and E, Only when the apparatus setting data of vending machine A' and the apparatus setting data of vending machine B', C', D', and E' are the same, The operation history of the final controlling element 3 copied to the vending machine controller B, C, and D and the buffer of RAM of E is copied to the key buffer of the vending machine controller B, C, and D and RAM of E, and it is constituted so that the control data of vending machine B', C', D', and E' may be searched and changed.

[0072]All of the control program of vending machine A', B', C', D', and E' and equipment setting conditions in being the same, What is necessary is just to choose the operation history which is based when search of the control data of vending machine A', B', C', D', and E' is performed and CPU of the vending machine A, B, and C, D, and E makes a change based on the time when operation of the final controlling element 3 was performed. All the control programs of vending machine A', B', C', D', and E' in being the same, The vending machine B, C, and D and CPU of E Vending machine B', C', D', What is necessary is just to choose the operation history which is based when performing search of the control data of E' and making a change based on comparison with the apparatus setting data of the time when operation of the final controlling element 3 was performed, and/or vending machine A', and the apparatus setting data of vending machine B', C', D', and E'. All the apparatus setting data of vending machine A', B', C', D', and E' in being the same, The vending machine B, C, and D and CPU of E Vending machine B', C', D', What is necessary is just to choose the operation history which is based when performing search of the control data of E' and making a change based on comparison with the identification data of the control program of the time when operation of the final controlling element 3 was performed, and/or vending machine A', and the identification data of the control program of vending machine B', C', D', and E'. Therefore, it is useful to choose arbitrary one or more in the time when operation of the control means was performed, the identification data of the control program of a vending machine, and the apparatus setting data of a vending machine according to the situation of two or more target vending machines, and to constitute so that an operation history memory measure may be made to memorize.

[0073]In this example, according to the control program of vending machine A', automatically, Arbitrary one or more in the time when operation of the final controlling element 3 was performed, the identification data of the control program of vending machine A', and the apparatus setting data of vending machine A' are chosen, The vending machine controller A

may be constituted so that RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B may be made to memorize.

[0074]The inside of various operation histories of the final controlling element 3 copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E in this example, CPU of the vending machine controller A, B, and C, D, and E Vending machine A', All the operation histories that can be based when searching and changing the control data of B', C', D', and E'. It copies to the key buffer of RAM of the vending machine controller A, B, and C, D, and E automatically, The vending machine controller A, B, and C, D, and E may be constituted so that CPU of the vending machine controller A, B, and C, D, and E may search and change the control data of vending machine A', B', C', D', and E' based on the history concerned. Time, identification data and vending machine B' of the control program of vending machine A' to which operation of the final controlling element 3 was performed, It compares with comparison with the apparatus setting data of comparison with the identification data of the control program of C', D', and E', and vending machine A', and the apparatus setting data of vending machine B', C', D', and E', etc., In various operation histories of the final controlling element 3 copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E, CPU of the vending machine controller A, B, and C, D, and E Vending machine A', When there are two or more operation histories which can be based when searching and changing the control data of B', C', D', and E', Automatically all the operation histories that can be based The vending machine controllers A and B. If it copies to the key buffer of RAM of C, D, and E and CPU of the vending machine controller A, B, and C, D, and E searches and changes the control data of vending machine A', B', C', D', and E' based on the history concerned, An operation staff's load at the time of the check of control data and alteration work is substantially reduced to abbreviated zero.

[0075]The inside of various operation histories of the final controlling element 3 copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E in this example, CPU of the vending machine controller A, B, and C, D, and E Vending machine A', An operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E from the operation history which can be based when searching and changing the control data of B', C', D', and E', Choose a desired operation history and automatically only the operation history concerned The vending machine controller A. It may copy to the key buffer of RAM of B, C, D, and E, and the vending machine controller A, B, and C, D, and E may be constituted so that CPU of the vending machine controller A, B, and C, D, and E may search and change the control data of vending machine A', B', C', D', and E' based on the history concerned. Time, identification data and vending machine B' of the control program of vending machine A' to which operation of the final controlling element 3 was performed, It

compares with comparison with the apparatus setting data of comparison with the identification data of the control program of C', D', and E', and vending machine A', and the apparatus setting data of vending machine B', C', D', and E', etc., In various operation histories of the final controlling element 3 copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E, CPU of the vending machine controller A, B, and C, D, and E Vending machine A', Even when there are two or more operation histories which can be based when searching and changing the control data of B', C', D', and E', there is a case where he would like to perform the check of the control data of vending machine A', B', C', D', and E', and to make a change based on the specific operation history in two or more operation histories concerned. When starting, it is convenient, if an operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E and can choose a desired operation history out of the operation history which can be based.

[0076]In this example, to the operation history of the final controlling element 3 which RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B memorize. The operation interval which a actual operation interval, i.e., the actual time interval during each operation, when operation of the final controlling element 3 is performed is included at as shown in drawing 2, or is unrelated to a actual operation interval and which was set up beforehand is included. Setting out of an operation interval is automatically performed according to the control program of vending machine A' which CPU11 of the vending machine controller A read from ROM12, or an operation staff performs it by operating the input key of the final controlling element 3 of the vending machine controller A.

[0077]RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, The operation history of the final controlling element 3 which RAM of the vending machine controller B memorizes The vending machine controller A. With a time interval with each operation history of the input key of the final controlling element 3 which is copied to the buffer in RAM of B, C, D, and E, and constitutes the operation history concerned equal to the actual operation interval or the operation interval set up beforehand of the final controlling element 3 included in the operation history concerned. It is copied to the key buffer in RAM of the vending machine controller A, B, and C, D, and E one by one. When it explains more concretely, "rise" key operation, for example The vending machine controller A. It is copied to the key buffer in RAM of B, C, D, and E, and a time interval equal to the actual operation interval or the operation interval set up beforehand of the final controlling element 3 included in an operation history is placed, and "down" key operation is copied to the key buffer in RAM of the vending machine controller A, B, and C, D, and E.

[0078]Based on each operation history of the input key of the final controlling element 3 copied to the key buffer in RAM of the vending machine controller A, B, and C, D, and E one by one,

CPU of the vending machine controller A, B, and C, D, and E carries out sequential retrieval of the control data of vending machine A', B', C', D', and E', and changes it. If it explains more concretely, for example based on "rise" key operation, The price data of 110 old yen is changed into 120 yen, a time interval equal to the actual operation interval or the operation interval set up beforehand of the final controlling element 3 included in an operation history is placed, and the price data once changed into 120 yen is again changed into 110 yen based on "down" key operation. Or based on "sales check" key operation, the sales of vending machine A', B', C', D', and E' are searched.

[0079]The indicator of the vending machine controller A, B, and C, D, and E displays the control data of sequential retrieval, changed vending machine A', B', C', D', and E' one by one. Under the present circumstances, the indicator of the vending machine controller A, B, and C, D, and E is a time interval equal to the actual operation interval or the operation interval set up beforehand of the final controlling element 3 included in the operation history of the final controlling element 3, and displays the control data of vending machine A' searched and changed, B', C', D', and E' one by one. If it explains more concretely, the prices of 120 yen changed based on "rise" key operation will be displayed, The display concerned is maintained between time intervals equal to the actual operation interval or the operation interval set up beforehand between "rise" key operation and "down" key operation, it ranks second and the prices of 110 yen changed based on "down" key operation are displayed. Since 110 yen separates a predetermined time interval from the display of 120 yen and an operation staff is displayed, Since the changed price can be clearly recognized visually if the predetermined time interval concerned excels, generating of the inconvenient situation of control data, such as a price, being changed unsuitably is prevented, and if said time interval is short, the time which the check of control data and alteration work take will be shortened.

[0080]In this example, irrespective of whether an operation interval is included in the operation history of the final controlling element 3, or the time interval to which CPU of the vending machine controller A, B, and C, D, and E and the indicator set beforehand the control data of vending machine A', B', C', D', and E' regardless of the operation interval included in the operation history of the final controlling element 3 -- sequential retrieval -- it may constitute so that it may change and display. If it explains more concretely, based on "rise" key operation, a price is changed into 120 yen from 110 yen, and it displays, and based on "down" key operation, it ranks second, and a price may be changed into 110 yen, and may be displayed from 120 yen with the time interval set up beforehand. The time interval of search, change, and a display The vending machine controller A, B, and C, D, Vending machine A' which CPU of E read from ROM of the vending machine controller A, B, and C, D, and E, Based on the control program of B', C', D', and E', it may set up automatically, or the operation staff of a vending machine may operate and set up the input key of the final controlling element of the vending

machine controller A, B, and C, D, and E. the time interval to which CPU of the vending machine controller A, B, and C, D, and E and the indicator set beforehand the control data of vending machine A', B', C', D', and E' -- sequential retrieval, if it changes and displays, Since the operation staff can recognize the contents of the control data visually clearly when the time interval concerned is long, generating of the inconvenient situation of control data, such as a price, being changed unsuitably is prevented, and when said time interval is short, the time which the check of control data and alteration work take is shortened.

[0081]In this example, CPU of the vending machine controller A, B, and C, D, and E, An indicator the control data of vending machine A', B', C', D', and E', With a time interval equal to the operation interval included in the operation history of the final controlling element 3, search, change, Irrespective of whether display or an operation interval is included in the operation history of the final controlling element 3, Or it refers to the time interval beforehand set up regardless of the operation interval included in the operation history of the final controlling element 3, The vending machine controller A, B, and C, D, and E may be constituted so that the operation staff of a vending machine may operate the input key of the final controlling element of the vending machine controller A, B, and C, D, and E and can choose whether it changes and displays. The control data of vending machine A', B', C', D', and E' is searched with a time interval equal to the operation interval included in the operation history of the final controlling element 3, Whether it changes and displays and irrespective of whether an operation interval is included in the operation history of the final controlling element 3, regardless of the operation interval included in the operation history of the final controlling element 3, if it can be chosen whether it searches, changes and displays with the time interval set up beforehand, it is convenient.

[0082]In this example, the operation staff of a vending machine, The input key of the final controlling element of the vending machine controller A, B, and C, D, and E is operated for the operation history of the final controlling element 3 which RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B memorize, Or the input key of the personal computer 5 can be operated and edited. According to the above-mentioned composition, it can be based on an operation history suitable for the actual condition, and control data can be checked and changed.

[0083]In this example, the operation staff of a vending machine, The input key of the final controlling element 3 is operated in the midst of operating the final controlling element 3 of the vending machine controller A, in order to make an operation history memorize, It begins from the "start" key operation copied to the buffer of RAM of the vending machine controller A, and the incomplete operation history in which it has not resulted to "end" key operation can be eliminated. In the midst of operating the final controlling element 3 of the vending machine

controller A, in order to make an operation history memorize, If the incomplete operation history copied to the buffer of RAM of the vending machine controller A can be eliminated when an operation staff commits a failure, Since operation of the final controlling element 3 can be redone and RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, and RAM of the vending machine controller B can be made to memorize a right operation history, it is convenient.

[0084]In this example, the operation staff of a vending machine, . Copied to the buffer in RAM of the vending machine controller A, B, and C, D, and E. RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, RAM of the vending machine controller B the operation history of the final controlling element 3 to memorize The vending machine controller A. In the midst of having copied to the key buffer in RAM of B, C, D, and E one by one, Operate the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and said copy is interrupted, Operate the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and carry out the additional input of the operation history to the key buffer in RAM of the vending machine controller A, B, and C, D, and E, and it ranks second to it, The copy which operated the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and was interrupted can be made to resume. The "rise" key operation copied to the key buffer in RAM of the vending machine controller A, B, and C, D, and E one by one, When each operation histories, such as "down" key operation, are unsuitable, interrupt said copy and the input key of the final controlling element of the vending machine controller A, B, and C, D, and E is operated, It is convenient, if said copy can be made to resume after carrying out the additional input of the operation histories, such as "rise" key operation and "down" key operation, to the key buffer in RAM of the vending machine controller A, B, and C, D, and E and correcting an unsuitable operation history.

[0085]In this example, when having copied the operation history of the final controlling element 3 to the key buffer one by one at FA from the buffer in RAM of the vending machine controller A, B, and C, D, and E, So that it may permit operating the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and inputting an operation history into a key buffer at FA only at the time of discontinuation of the copy concerned, the vending machine controller A, B, and C, D, and E being constituted, or, The operation history of the final controlling element 3 from the buffer in RAM of the vending machine controller A, B, and C, D, and E. When having copied to the key buffer one by one at FA, the vending machine controller A, B, and C, D, and E may be constituted so that it may permit operating the input key of the final controlling element of the vending machine controller A, B, and C, D, and E at any time, and inputting an operation history into a key buffer at FA. In the case of the former, a final controlling element is accidentally operated during the copy to a key buffer, and

generating of the situation where an operation history is corrected accidentally is prevented. On the other hand, when the control data searched and changed is displayed with a time interval long enough. When the control data which the operation staff who recognized visually the control data searched and changed recognized visually is unsuitable, it is physically possible enough to operate a final controlling element in said time interval, to correct an operation history, and to correct control data by extension. Therefore, it is useful to constitute the vending machine controller A, B, and C, D, and E so that it may permit operating a final controlling element at any time, and inputting an operation history into a key buffer during the copy to the key buffer of an operation history at FA.

[0086]In this example, an operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, The control data which CPU of the vending machine controller A, B, and C, D, and E changed can be eliminated, and the old control data which was making it evacuate to the predetermined storage area of RAM of the vending machine controller A, B, and C, D, and E temporarily can be restored. When the control data after change is unsuitable, it is convenient, if the control data concerned can be eliminated and old control data can be restored.

[0087]In this example, the vending machine controller A, B, and C, D, and E, RAM13 of the portable memories 2, 6, and 7 and the vending machine controller A, RAM of the personal computer 5, It has a displaying means which the LED lamp etc. which indicate that each memory is in each operating state do not illustrate during memory of an operation history at the time of the end of memory of an operation history at the time of the memory start of the operation history of the final controlling element 3 by RAM of the vending machine controller B. It is convenient if the operating state of each memory can be grasped.

[0088]In this example, the vending machine controller A, B, and C, D, and E, It has a displaying means which the LED lamp etc. which indicate that a key buffer is in each operating state do not illustrate during a copy and copy discontinuation at the time of the end of a copy at the time of resumption of a copy at the time of the copy start of the operation history to the key buffer in each RAM. It is convenient if the operating state of a key buffer can be grasped.

[0089]The operation of the vending machine controller concerning this example is explained based on drawing 3 - the flow chart of five. An operation history memory operation is explained based on drawing 3. A push of the "start" key of the remote control unit of the final controlling element 3 of the vending machine controller A of the operation staff of a vending machine will start an operation history input operation (S1). If an operation staff pushes the input key of the remote control unit of the final controlling element 3, the goods selector button of vending machine A', etc. one by one and operates the final controlling element 3, The time interval which is unrelated to the actual time interval or the actual time interval from the operation concerned and the last operation and which was set up beforehand is inputted into the key

buffer in RAM13 of the vending machine controller A one by one. The operation history of the final controlling element 3 inputted into the key buffer in RAM13 of the vending machine controller A one by one is copied to the buffer in RAM13 of the vending machine controller A one by one (S2, S3). If an operation staff presses the "cancellation" key of the remote control unit of the final controlling element 3 when an operation staff commits the failure of the final controlling element 3, the incomplete operation history of the final controlling element 3 copied to the buffer in RAM13 of the vending machine controller A one by one will be eliminated, and an operation history memory operation will be ended (S4). An operation staff repeats operation of the final controlling element 3, finally presses the "end" key of the remote control unit of the final controlling element 3, and finishes the input of an operation history (S5).

[0090]The storage which specifies the storage with which an operation staff operates the input key of the final controlling element 3, and memorizes an operation history, or memorizes an operation history automatically according to the control program of vending machine A' is specified (S6). It is judged whether the specified storage is directly connected to the control section 1 of the vending machine controller A indirectly via the circuit (S7). When said storage is not connected, the operation history of the final controlling element 3 copied to the buffer in RAM13 of the vending machine controller A is eliminated, and an operation history memory operation is ended.

[0091]When said storage is connected, specification of a memory content is performed (S8). namely, the thing for which an operation staff operates the input key of the final controlling element 3 -- or automatically according to the control program of vending machine A', Whether all the operation histories of the final controlling element 3 copied to the buffer in RAM13 of the vending machine controller A are stored in said storage. Or it is specified whether the operation history except 1 of the "operation time" in an operation history, "control program identification data", "apparatus setting data", and the "operation intervals" or two or more data is stored in said storage. The operation history of the contents specified by memory content specification operation is memorized by the storage specified by storage specification operation, and (S9) and an operation history memory operation are completed (S10).

[0092]When storing two or more operation histories in a storage, the operation of the above S1-S10 is repeated.

[0093]An operation history reading operation is explained based on drawing 4 and 5. If an operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E and directs reading of an operation history, an operation history reading operation will be started (S1). An operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and the storage of a reading place is specified, or the storage of a reading place is automatically specified according to the control program of vending machine A', B', C', D', and E' (S2). It is

judged whether the specified reading place storage is directly connected to the control section of the vending machine controller A, B, and C, D, and E indirectly via the circuit (S3). When the reading place storage is not connected, an operation history reading operation is ended.

[0094]When the reading place storage is connected, the vending machine controller A. The old control data memorized in the predetermined storage area of CPU of B, C, D, and E, It is copied to RAM of the vending machine controller A, B, and C, D, and E, and it is evacuated temporarily and all the operation histories of the final controlling element 3 memorized by the reading place storage are copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E (S4). An operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, Or it is specified whether manual reading of whether automatic reading of the operation history of the final controlling element 3 memorized by the reading place storage is automatically carried out based on the control program of vending machine A', B', C', D', and E' is carried out (S5).

[0095]The "control program identification data" of each operation history copied to the buffer of RAM of the vending machine controller A, B, and C, D, and E when manual reading was carried out, and "apparatus setting data", The apparatus setting data of the control program identification data of vending machine A', B', C', D', and E', vending machine A', B', C', D', and E' is compared, and it is judged whether there is any selectable operation history (S6). When there is no selectable operation history, an operation history reading operation is ended. When there is a selectable operation history, an operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and chooses the operation history of 1 or two or more requests (S7). An operation staff operates the input key of a final controlling element and stops the reading operation of an operation history to stop reading of an operation history (S8). After selection of a desired operation history is completed, an operation staff operates the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and makes reading of a desired operation history start (S9).

[0096]The "control program identification data" of each operation history read when automatic reading was carried out, and "apparatus setting data", The apparatus setting data of the control program identification data of vending machine A', B', C', D', and E', vending machine A', B', C', D', and E' is compared, and it is judged [a selectable operation history or] whether it is or not (S10). When there is no selectable operation history, an operation history reading operation is ended. When there is a selectable operation history, based on the control program of vending machine A', B', C', D', and E', the operation history read is chosen automatically (S11). Choosing the latest operation history most, choosing all the selectable operation histories as a selection method, etc. are mentioned.

[0097]An end of selection of the reading operation history by an automatic according [or] to

hand control will specify how for an operation staff to operate the input key of a final controlling element, or read an operation history automatically based on the control program of vending machine A', B', C', D', and E'. Each operation with the time interval as the operation interval included in an operation history Namely, the vending machine controller A. From the buffer of RAM of B, C, D, and E, copy to a key buffer and Vending machine A', Whether is the control data of B', C', D', and E' searched and changed, and it displays on the indicator of the vending machine controller A, B, and C, D, and E with or the time interval which was concerned with the operation interval included in an operation history, and was set up beforehand that there is nothing. Each operation is copied to a key buffer from the buffer of RAM of the vending machine controller A, B, and C, D, and E, the control data of vending machine A', B', C', D', and E' is searched and changed, and it is specified whether it displays on the indicator of the vending machine controller A, B, and C, D, and E (S12).

[0098]hand control -- or the automatically selected operation history -- hand control -- or it is copied to a key buffer one by one by the reading method set up automatically from the buffer of RAM of the vending machine controller A, B, and C, D, and E (S13). CPU of the vending machine controller A, B, and C, D, and E, Based on the operation history copied to the key buffer of RAM of the vending machine controller A, B, and C, D, and E one by one, the control data of vending machine A', B', C', D', and E' is searched and changed, and it displays on the indicator of the vending machine controller A, B, and C, D, and E (S13).

[0099]When an operation staff wants to correct the control data after change displayed on the indicator, The input key of the final controlling element of the vending machine controller A, B, and C, D, and E is operated, The copy of the operation history to the key buffer of RAM of the vending machine controller A, B, and C, D, and E is interrupted, The input key of the final controlling element of the vending machine controller A, B, and C, D, and E can be operated, control data can be corrected, and the copy of the operation history to the key buffer which subsequently operated the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, and was interrupted can be made to resume (S14, S15).

During the copy of the operation history to a key buffer, the operation staff can operate the input key of the final controlling element of the vending machine controller A, B, and C, D, and E, can stop the copy of the operation history to a key buffer, and can terminate an operation history reading operation (S16, S17, S23). "Discontinuation", "input key operation for control data correction", "resumption", and a "stop" are performed while the control data to correct is displayed on the indicator (S18). If the "end" key operation of an operation history is copied to a key buffer, the reading operation of one operation history will be completed (S19).

[0100]When the control data of vending machine A' checked and changed, B', C', D', and E' is not desired control data, an operation staff, After an operation history reading operation is completed, "Undo" operation of the input key of the final controlling element of the vending

machine controller A, B, and C, D, and E is carried out, The control data checked and changed is eliminated and the old control data which was making it evacuate to RAM of the vending machine controller A, B, and C, D, and E temporarily is restored (S20, S21). After the reading operation of all the selected operation histories is completed, an operation history reading operation is ended (S23).

[0101]In the above-mentioned example, when two or more operation histories are memorized by the memory, copy all a series of histories from a "start" of all the operation histories to a "end" to the buffer in RAM of a vending machine controller, and it ranks second, Although only the operation history which chose and chose the operation history which can be based on the occasion of the check of control data and change was copied to the key buffer in RAM of a vending machine controller one by one based on the vending machine control program identification data, vending machine apparatus setting data, and operation time which are contained in an operation history, When two or more operation histories are memorized by the memory, copy only the vending machine control program identification data of all the operation histories, vending machine apparatus setting data, and operation time to the buffer in RAM of a vending machine controller, and it ranks second, Based on vending machine control program identification data, vending machine apparatus setting data, operation time, etc. which are contained in an operation history, only the operation history which chose and chose the operation history which can be based on the occasion of the check of control data and change may be copied to the key buffer in RAM of a vending machine controller one by one. The time which operation history reading takes is shortened. In the above-mentioned example, since a "start" of an operation history and a "end" can be judged from the operation history of order so that drawing 2 may show although "start" key operation and "end" key operation were memorized when memorizing an operation history, it may omit from a memory content.

[0102]

[Effect of the Invention]In the vending machine controller applied to this invention as explained above, If the operation history memory measure is made to memorize various operation histories for checked and changing various control data of the vending machine which operated the control means intricately beforehand and in which this control device was incorporated, Since it is based on the read operation history, and it will be analytical-table-shown and a check alteration means will change control data after that if a desired operation history is made to read into an operation history reading means from an operation history memory measure according to a situation, There is no necessity of operating a control means intricately at a given degree of the check of control data and alteration work like before. If the operation history of the control means of the vending machine controller A which the operation history memory measure of the vending machine controller A memorized, for example is made to read into the vending machine controller B, C, and D and the operation history reading

means of E, Since it is analytical-table-shown and the vending machine controller B, C, and D and the check alteration means of E change the control data of the vending machine in which the vending machine controller B, C, and D and E were incorporated based on the read operation history, When performing check of the vending machine controller B, C, and D and the control data same at E as the vending machine controller A, and alteration work, there is no necessity of carrying out manual operation of the control means intricately for every vending machine controller. Therefore, in the vending machine controller concerning this invention, there is little load of the operation staff of a vending machine at the time of checking and changing control data compared with the former.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a configuration diagram of the vending machine controller concerning the example of this invention.

[Drawing 2]It is a figure showing the example of a data structure of the operation history memorized by the operation history memory measure of the vending machine controller concerning the example of this invention.

[Drawing 3]It is a flow chart of an operation of the vending machine controller concerning the example of this invention.

[Drawing 4]It is a flow chart of an operation of the vending machine controller concerning the example of this invention.

[Drawing 5]It is a flow chart of an operation of the vending machine controller concerning the example of this invention.

[Description of Notations]

- 1 Control section
- 2, 6, and 7 Portable memory
- 3 Final controlling element
- 4 Indicator
- 5 Personal computer
- 11 CPU
- 12 ROM
- 13 RAM

[Translation done.]

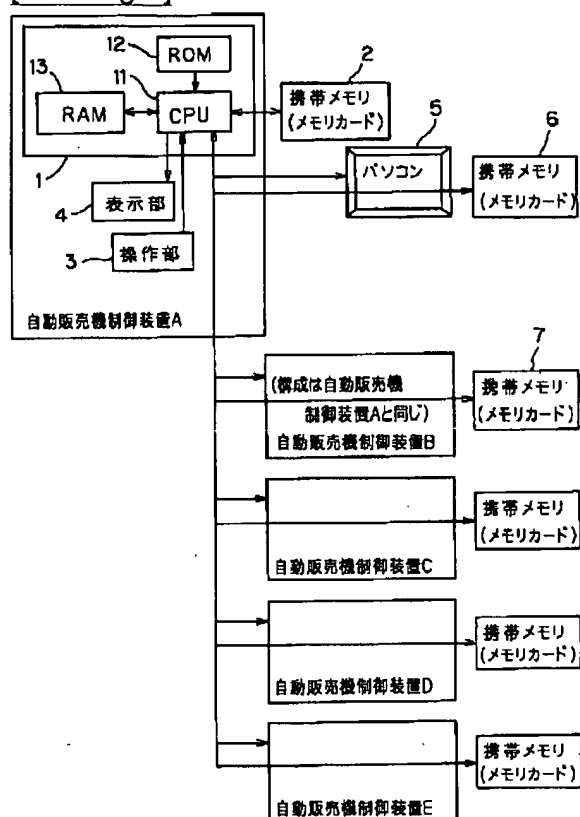
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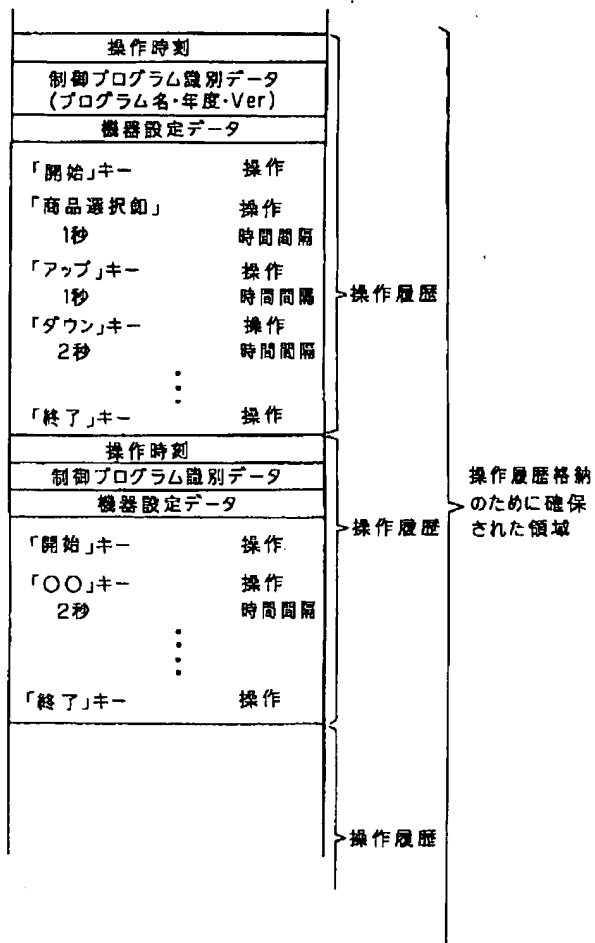
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DRAWINGS

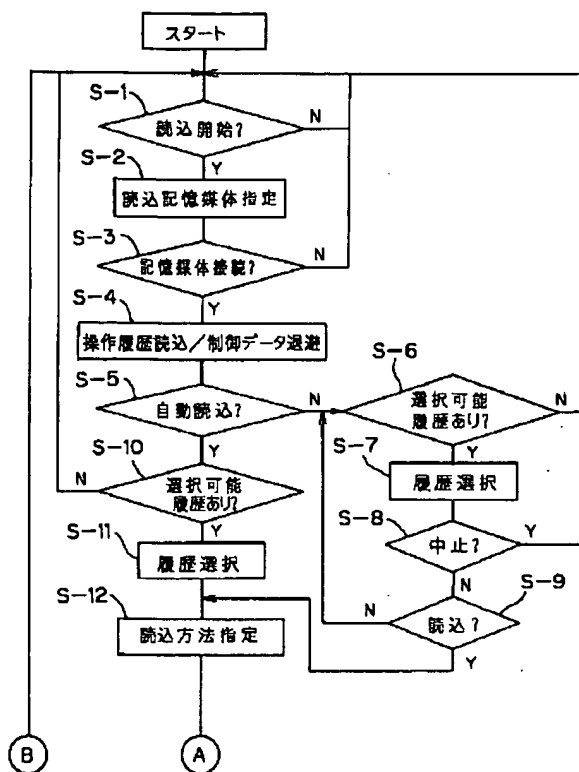
[Drawing 1]



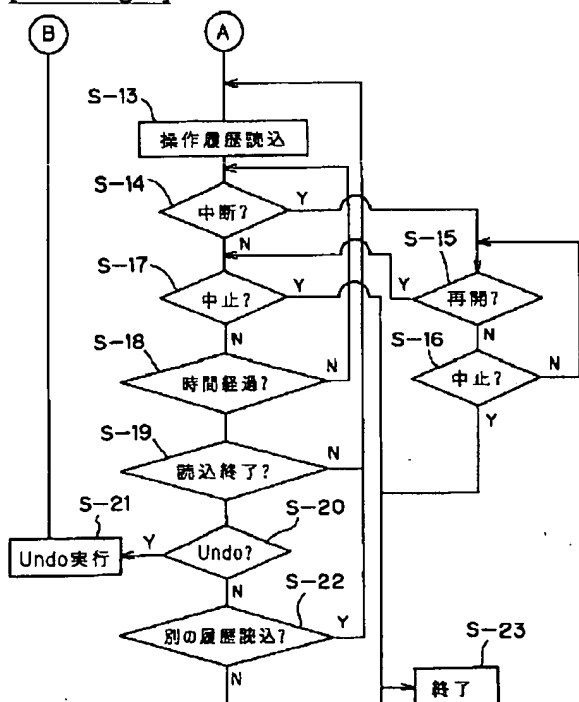
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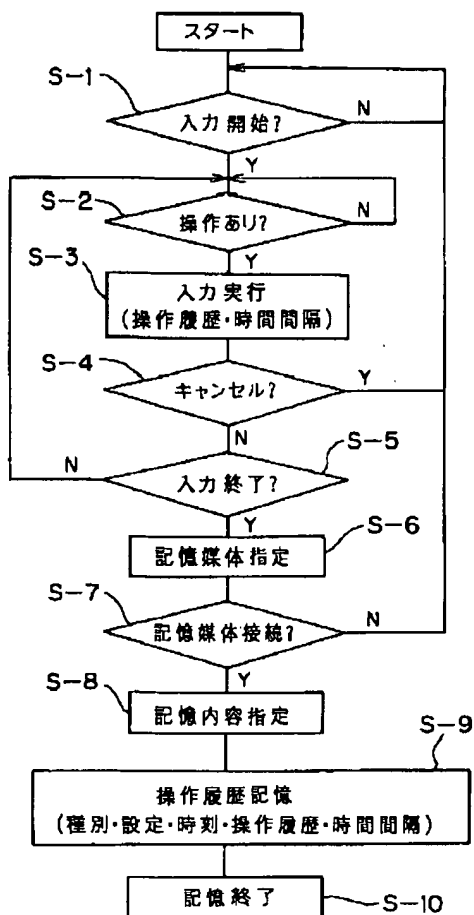
[Drawing 4]



[Drawing 5]



[Drawing 3]



[Translation done.]